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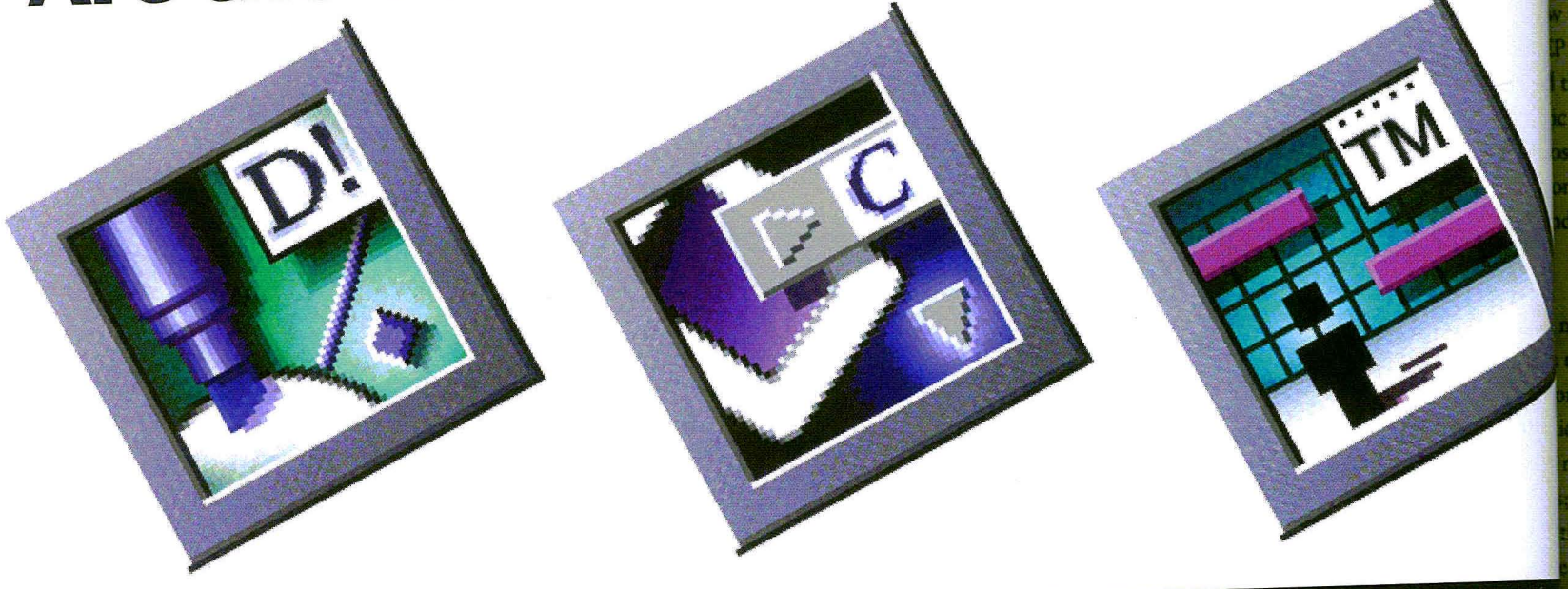
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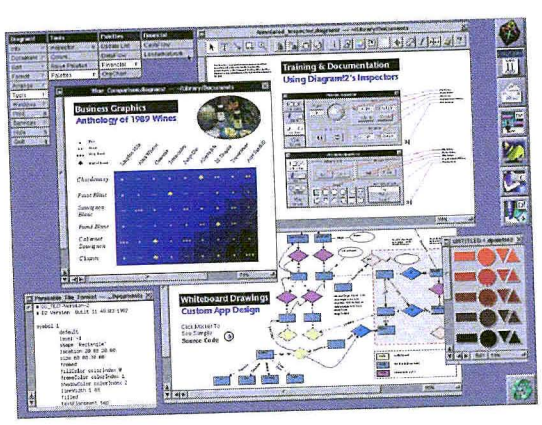
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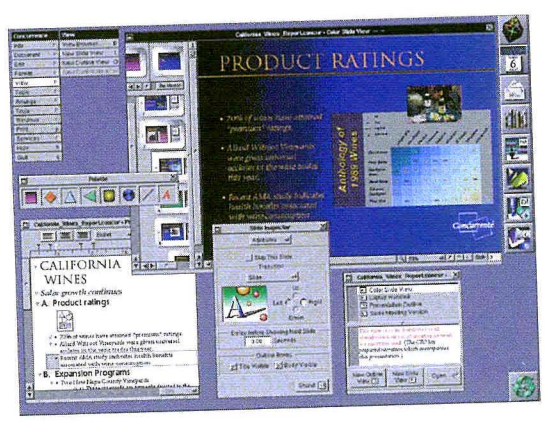
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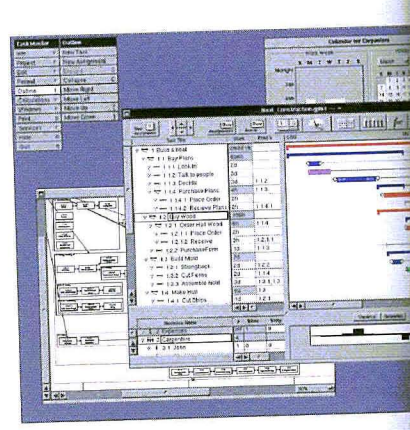
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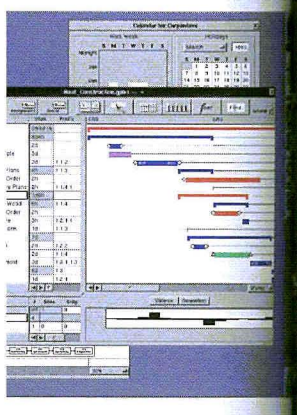
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Publisher's Letter

r *NeXTWORLD* Subscribers and New Readers,

d News! Starting with the August issue – due at newsstands by July – *NeXTWORLD* will be available to you on a monthly basis.

w that NeXTSTEP for Intel Processors is shipping along with NeXT-EP PCs, NeXT has moved to the mainstream of corporate computing. d this is just the beginning. At the magazine, we have witnessed a dra-tic increase in interest among computer managers who are being osed to NeXT technology for the first time. *NeXTWORLD*'s move to onthly frequency is intended to serve the expanding market with time-nd comprehensive news and information – all in one complete pack-.

e new, monthly *NeXTWORLD* will place increasing emphasis on sub-s related to object–oriented, client/server computing, reflecting the portance of NeXTSTEP for Intel Processors in corporate downsizing plications. We will continue to serve you and our expanding base of readers with in-depth product, technology, and issue-oriented fea-s; no–holds–barred product reviews; and community profiles. Each th you'll get the most extensive and comprehensive NeXTSTEP cov-e available – from the most experienced, respected experts in the stry.

use corporate buyers rely on timely product and business news for nology planning, *NeXTWORLD Extra* will once again become a lar late-breaking news section of the magazine (see page 21). Our or columnist, Lt. Sullivan, will reclaim his regular space in every issue. s, as developments take shape in the NeXT community, *TWORLD* will keep you in touch with advanced news, in-depth erage, and post-event analysis.

r our regular subscribers, this means you will no longer receive *NeXT-RLD Extra* as a separate newsletter. Now you'll have all the infor-tion you need – in one place, every month – to make timely and rmed decisions.

nk you for being a subscriber to *NeXTWORLD*. We appreciate your lty, support, and patience through the magazine's frequency changes m quarterly, to bimonthly, and now to monthly. If you ever have a ment about a *NeXTWORLD* article, want to express an opinion, or our attention to issues important to you, please write. Your feedback ery valuable to us!

Sincerely,

Jeannine Barnard

Publisher

ite or e-mail: NeXTWORLD, 501 Second St. San Francisco, CA 94107
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Volume 3, Issue 3

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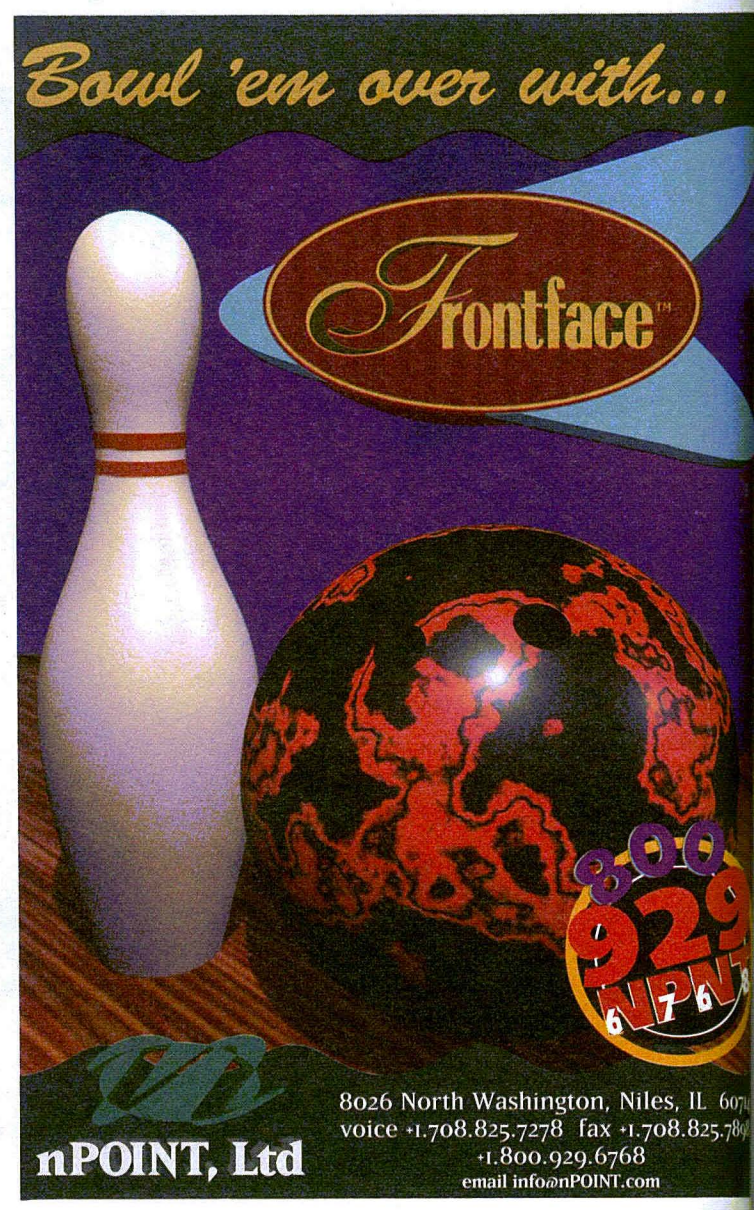
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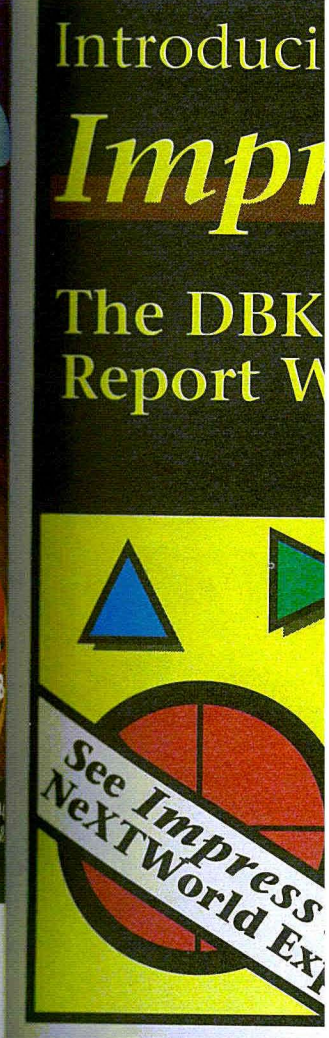
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The Art of the Deal

DAN RUBY

On the aftermath of NeXT's business-model turnabout, the clamor in the NeXT community for a bailout by a larger company has reached fever pitch. Conventional wisdom says that the company needs to make a deal, any deal, to survive.

That's wrong. While there are many types of business partnerships that could help NeXT, let's be serious and recognize that not every deal is a good deal. NeXT must not be railroaded into accepting any relationship that doesn't serve its customers and developers.

I don't believe there is any single blockbuster deal that will fix all of NeXT's problems. What NeXT needs is a series of smaller deals that address specific areas of need. One or more of these may be concluded soon, possibly before this column appears.

The kind of deal that none of us should want is one that treats NeXTSTEP as a collection of technologies to be broken up and reused in another, incompatible system. For example, an outright acquisition by another software supplier, even at a price that leaves NeXT's investors whole, would put NeXTSTEP at risk as an independent platform. Most potential buyers are interested in NeXT's technology but not its product.

We should want deals that validate NeXTSTEP as a viable alternative operating system. First, NeXT needs one or more partners among workstation manufacturers to support ports of NeXTSTEP to high-performance hardware. NeXTSTEP for Intel supports fast systems based on the new Pentium chip, but many customers need the promise of even faster performance on one or more of the various RISC architectures.

The second category of partner is one who believes enough in NeXT's future to invest in it. A new round of investment would allow NeXT to take advantage of new opportunities. Of course, valuing the company for a new investment will be complex, but I think there are industry players out there who stand to benefit by a play in NeXTSTEP and who would give fair value for the opportunity.

The third kind of deal that NeXT needs is technology partnerships. It was a disappointment that NeXTSTEP was not initially endorsed by the Common Open Systems Environment (COSE) alliance of UNIX hardware and software vendors, but there are more cards yet to fall. As the process plays out, it is more than possible that NeXT will play a role or team up with COSE participants in separate ventures.

Let's also give credit to NeXT for the new relationships it has forged under the NeXTSTEP for Intel banner. The lineup of important PC manufacturers supporting NeXTSTEP is more than respectable, and these players are excited about their opportunities to sell NeXTSTEP PCs.

Yes, NeXT needs to strike deals. But no, it should not go around with its hat in hand. NeXTSTEP is a valuable asset that must live on as an independent entity. Current NeXT customers know that better than anyone.

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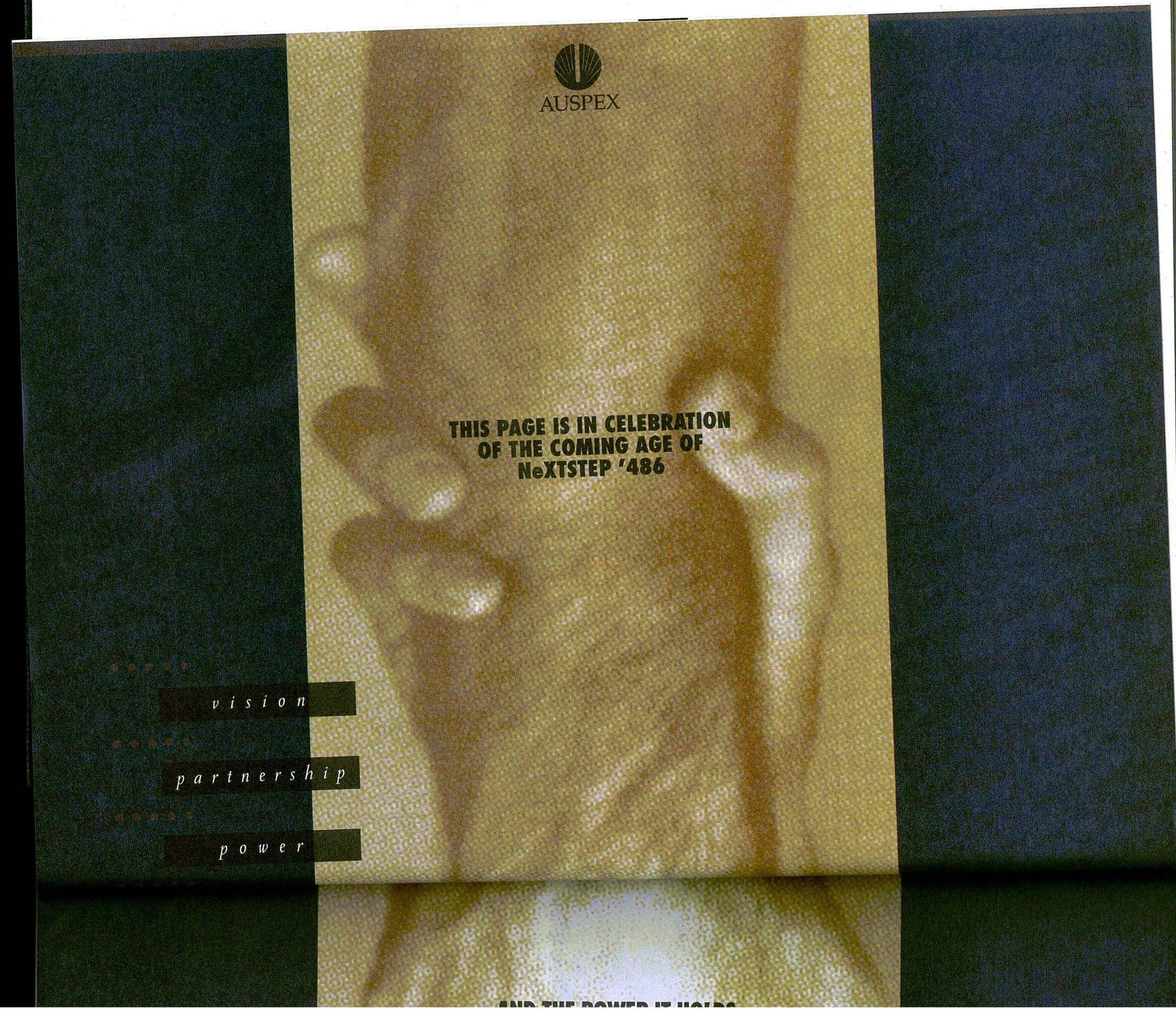
When *NeXTWORLD* goes monthly in August, we will finally take the step we've been itching to make since the beginning. Our new frequency allows us to include timely news coverage, so beginning with this issue *NeXTWORLD Extra* returns as a regular section of the magazine.

Finally, three cheers for our BoB winners, the products in the NeXT market that were honored at NeXTWORLD Expo as the Best of Breed. We will have a full report on the BoB awards in our next issue.

DAN RUBY *is editor in chief of* NeXTWORLD.

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Good news

I'm angry and I feel like an
I've read *NeXTWORLD* s
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to have to spend even more
to get the rest of the news a
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MARK WARRIAN
Oak Lawn, Illinois

Beginning with this issue, N
WORLD Extra *goes back i*
magazine – and this time it
good. – NW

Double billing

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MICHAEL D. STEELE, CPA
President, AXSYS
Bala Cynwyd, Pennsylvania

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Good news

I'm angry and I feel like an idiot. I've read *NeXTWORLD* since the very first issue but this will be the last one I buy. It's bad enough that you're breaking the magazine into two, real and extra (as if the NeXT cosmos was so rich in happening stories that no one mag could hold them all), but now I 'm peppered with little notes saying that this detail or that detail is covered in the *Extra*. I don't want to be reminded on every third page that I'm going to have to spend even more money to get the rest of the news about a seemingly moribund environment.

MARK WARRIAN
Oak Lawn, Illinois

Beginning with this issue, NeXTWORLD Extra *goes back into the magazine – and this time it's for good. – NW*

Double billing

I would like to offer some feedback on Daniel Miles Kehoe's acutely negative review of our application in *NeXTWORLD*'s April/May issue. Beginning with the smearing headline, Mr. Kehoe's comments indicate that he wasn't interested in becoming familiar with the product before writing the review.

Most of his mistakes stem from Fiscal Dimension's incorrect billing as a "personal-finance program" instead of an accounting package. The confusion arises because the current release is called the Personal Version. It is "personal" because it does not provide complete accounts-receivable and accounts-payable capabilities. Its general ledger capabilities are certainly capable of handling the most complex organizational accounting requirements.

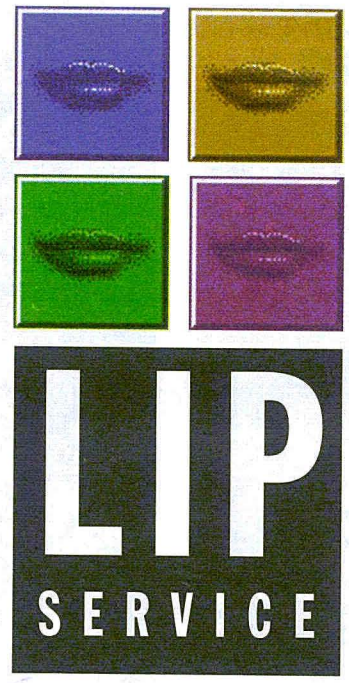
Mr. Kehoe also failed to mention that he was evaluating a prerelease (.9.5) version; 1.0 shipped on March 30. And he declined to discuss many unique and important features of Fiscal Dimension. It is clear that Mr. Kehoe was negatively predisposed toward the product, which invalidates his review.

MICHAEL D. STEELE, CPA
President, AXSYS
Bala Cynwyd, Pennsylvania

Based on my tests using books for two corporations, I would guess that Daniel Miles Kehoe did not review Fiscal Dimension Version 1.0. Other than the interface troubles he describes, I found none of the problems he mentions. Also, Fiscal Dimension is reviewed against personal financial-management programs even though it is an accounting package – and a darn good one for only $249. With unrealistic expectations, a product will obviously not review well, despite doing its assigned and advertised functions very well indeed.

ALIX SHATTUCK
Los Alamos, New Mexico

Due to shipment delays, NeXTWORLD *reviewed a beta version of Fiscal Dimension 1.0, and the review should have been labeled as such. Otherwise,* NeXTWORLD *followed its established procedures, including a full discussion of the review conclusions with the software publisher. Daniel Kehoe is fully qualified as an unbiased reviewer of accounting software. As we do with all beta reviews,* NeXTWORLD *will publish an updated rating of the shipping version. – NW*



Ties that bind

In the February/March issue's Lip Service, David Neuman asked whether Microsoft Windows supports dynamic binding and Steve Naroff correctly replied that this is a language issue. But then he went on to say that Windows "does not have language support for any of these features." That's not the case. With Objective-C, which is available under Microsoft Windows, it is possible to build a single DLL per class, and link them dynamically at run time.

In the future, I recommend that *NeXTWORLD* direct Windows-related questions to Windows experts instead of NeXT employees, who might have a vested interest in downplaying the abilities of Windows.

CHRISTOPHER LOZINSKI
Berkeley, California

High time

I noticed you omitted any mention of products for the CLC-300 or CLC-500 copiers (see "Scanning the Landscape," *NeXTWORLD*, February/March). Please remember the high end next time!

DYLAN KOHLER
Glendale, California

Suggestion box

In my opinion, it was the integration of NeXT's hardware and software that was NeXT's main strength. In the PC world, the notion of standards is a vague one, due to the diversity and fierce competition. If NeXT could "recycle" its work with workstations and add-in-boards into add-in cards for UNIX PCs, the company would retain the advantage it had before dropping hardware.

One card could reuse the 56002 DSP parts to add voice annotation, fax, and other multimedia functions; another could add a linear video-frame buffer; another could be a video I/O card for producing desktop and multimedia productions in-house; and still another could serve as a 68040 "accelerator board" to run applications that relied heavily on 68040 assemblers when running on the black boxes.

Doing so would help define a hardware standard in the critical areas of audio and video and provide NeXT with a means to protect itself against established UNIX software vendors trying to position themselves in the PC market.

ERIK ROMERO
Puebla, Mexico

Since the Release of NeXTSTEP 3.0, I have been struggling with bugs in nearly every program on my personal NeXT. System crashes are no longer the exception. Instead of taking Canon's cash, NeXT would probably be in better condition if it had borrowed management ideas, like total quality management, from its Japanese partner.

THOMAS HEIN
Berlin

I can't decide if the NeXT ad on pages 28 and 29 of your April/May issue [a photograph of an empty NeXT computer box with a NeXT-edge promotion] is lighthearted or just a failed cancellation. With the future of support for my two NeXTs currently unclear, I wonder about the decision to keep publishing that same ad. I would like to see NeXT buy that two-page spread and tell us what is really going on out there.

CHRISTIAN RATLIFF
Portland, Maine

Photo chop

While your February/March issue had the usual wealth of perceptive reviews and other good stuff, I missed the mug shots of all the columnists. Even though I've seen Dan Ruby's picture a million times, it puts a human face behind his opinions.

TONY AUSTIN
Van Nuys, California

NeXTWORLD welcomes your comments. Please send them to Letters at NeXTWORLD, 501 Second St., San Francisco, CA 94107; or e-mail: letters@nextworld.com.

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Next Generation

EDUCATION

WATCHING NATHAN CASS WORK A NEXT MACHINE, YOU CAN TELL HE knows what he's doing. He opens a Terminal shell to telnet a remote FTP site and downloads a sound file into his home directory. Then he launches Mathematica, graphs a function, and pastes the graph into a Mail window. It's just another school day at Rancho Verde High, outside Riverside, California.

Cass, a quiet 15-year-old freshman who wants to study particle physics at Cal Tech, isn't alone in the computer lab this lunch hour; seven other students are playing interactive games or catching up on calculus assignments. Math teacher Jim Smith moves among them, nibbling a sandwich and answering questions. "We're animating calculus functions," Smith explains. "The students are making new connections by using Mathematica to see results. And I can ask them questions I hadn't thought of before, based on the animations."

With 420 NeXT machines networked between the district office, administrators' and teachers' desks, and computer labs and a journalism classroom, Val Verde Unified may rank as the most highly computerized K-12 school district in the United States. Every administrator and teacher has 10MB of disk space, while students are each given 5MB. File permissions are designed for easy student-teacher access. And the 12 schools and district office are tied together with a hefty T1 Ethernet system, enough pipe for up to 1.5MB per second of data, with each school wired with an FDDI (fiber distributed data interface) backbone for fiber optics.

The system has even caught the eye of the Clinton Administration; district IS Director Darrell Lynn is currently working with DARPA to promote Vice President Al Gore's high-speed data network. He also spoke in May before the Institute of Electrical and Electronics Engineers in Washington, DC. "Our program has coupled teachers, students, and administrators with infrastructure. The school board made technology an important component of the district – rather than a bolt-on – and everyone's responded," Lynn says.

The response, though, was a little slow in coming. The district was unified only last year, and some teachers questioned spending state F&E (furniture and equipment) funds on high-tech gizmos. Other teachers saw the NeXT as just another Mac, but one with a higher price tag for machines and active components like fiber optics. To counter these concerns, the board got out the message that they only had one chance to do it right – while the district was first forming and new schools were under construction.

☞ PAGE 13

PHOTOGRAPH BY SUSAN WERNER

In the Loop

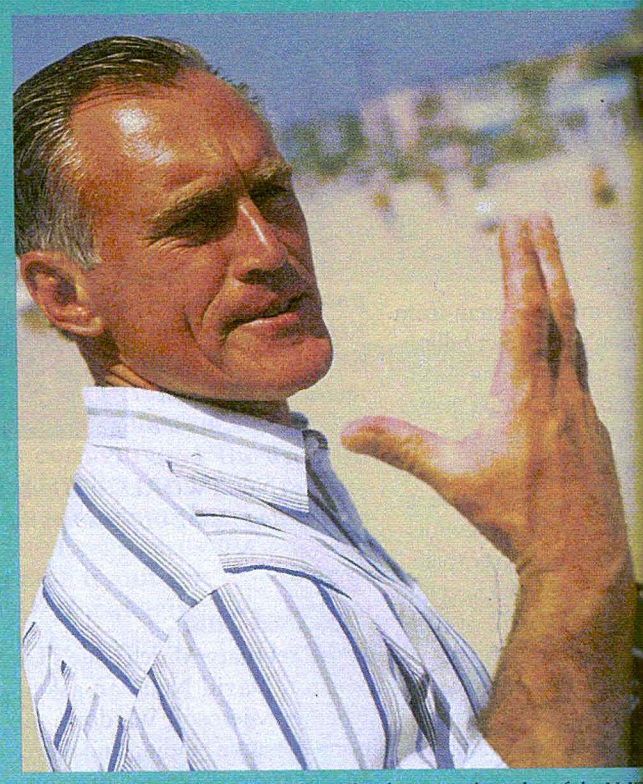
INSIDER

Consider almost any event of importance in the NeXT c nity, and you can bet that Jim Opfer played a role in it. W is advising Steve Jobs on how to handle the crisis of coordinating communication among large customers, c gelizing a favored software product, the retired Air Forc is behind the scenes making things happen.

More often than not, his influence is felt in the form Mail, the 150 or more messages a day that burst out c mobile palmtop computer over RAM Mobile Data's ra quency network. For industry insiders who seek his ad peripatetic Opfer is hard to pin down to a place and tim he's always there via RadioMail.

"Between NeXTSTEP and RadioMail, I may be the empowered single person anywhere. Technology speed OODA loop," he says, referring to the fighter pilot's cre serve, Orient, Decide, and Act. "Pilots with the fastest O loops survive in combat. It's the same thing in busines

Opfer first looped into the NeXT community as chie



U.S.A.F. Col. (Ret.) **Jim Opfer** *keeps his finger on the pulse of the NeXT through more than 100 daily RadioMails.*

mation technology for the U.S.A.F. Space Systems co where he chose NeXT as the standard desktop and de platform. NeXTSTEP solved two problems in the 60 information systems group: It excelled as a developm form for downsizing mainframe applications to an ope server architecture. And it provided a great desktop en for group collaboration and organizational productivit

After evaluating NeXTSTEP and meeting

PHOTOGRAPHS BY GORDON STUDER

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PHOTOGRAPH BY GABOR EKE



TEN MOST WANTED

Total tumult since last time resulted in major changes to the list. Early '486 shipment, NeXTSTEP 3.1, and NeXTSTEP notebook went in the bag. New concerns regarding viability rose quickly. Some may be settled by the time this sees print.

RANK	LAST TIME	ISSUES ON LIST	ITEM	COMMENT
1	6	4	Major industry alliance(s)	Too late to fly solo
2	–	1	Community solidarity	Time to stick together
3	3	6	Expanded marketing message	Serious demand creation
4	–	1	Aggressive IHV marketing	Early bird catches worm
5	2	5	NeXT management stability	New org, board unproven
6	–	1	Black systems manufacturer	Reader's choice
7	–	1	Notebook interface	Low-res NS variant
8	–	1	Guaranteed '040 support	Faithful are nervous
9	–	1	Aggressive corporate PR	Recent missed opportunities
10	–	1	Real ObjectWare	OTC is promising



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Pinnacle Research
602/529-1135

SOFT PC 3.0 PRODUCT FAMILY FOR NEXT COMPUTERS
Solutions for running MS-DOS and Microsoft Windows
Insignia Solutions
415/694-7600

VWALL
Direct-messaging application
Pinnacle Research
602/529-1135

FORERUNNER NXA-100 ATM COMPUTER INTERFACE
ATM networking for NeXT workstations
Fore Systems
412/967-4040

DATABASE AND INFORMATION MANAGEMENT

DBCONNECT FOR INGRES 1.0
DBKit adapter for INGRES database
Penultimate Development
612/225-1401

NOTEBOOK
Personal information processing
Millennium Software Labs
415/321-3720

PENCIL ME IN 1.0
Group-scheduling application
Sarrus Software
415/364-1432

☞ PAGE 12

ILLUSTRATIONS BY GORDON STUDER

Logical Partner

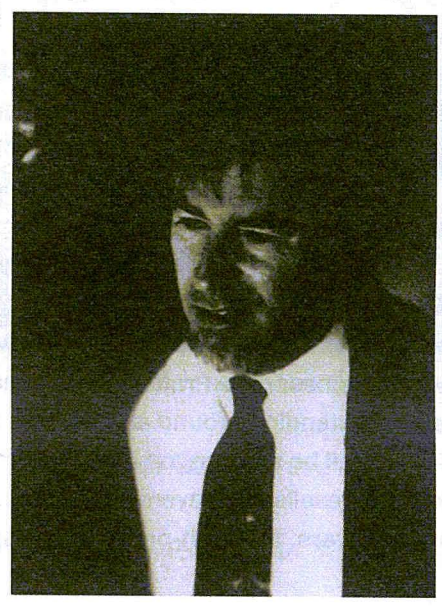
DEVELOPER

Tom Atwood, the chairman of Object Design (ODI), is one of very few people equally versed in the machinations of high technology and the history of philosophy. "My interest in object-oriented technology probably had its roots in my interest in the poet William Blake," says Atwood. "He proclaimed, 'Imagination created the world.' "

Imagination is practically a maxim for Atwood, who has been called "the father of object-oriented databases" for his role in founding two object-oriented database companies, Ontologic and ODI, and for his leadership role in organizing the Object Data Management standards group.

After studying literature at Yale, Atwood soon found himself implementing a database-management system at Data General Corporation and, later, a distributed-object operating system at Digital Equipment Corporation. An entrepreneurial side of his personality emerged when he found his drive for knowledge was matched by a drive to see technologies come to life.

Under Atwood's leadership at ODI, making things happen has meant seeking strategic partners and then getting leading-edge technologies into the hands of people who will use them. NeXT was a logical partner. A year ago, ODI announced it would collaborate with NeXT in developing the next generation of object-storage and database technology, a project that will culminate in future versions of NeXTSTEP.



ODI's **Tom Atwood**

Unlike other companies building object-database technologies, ODI is developing technology that scales from languages to file systems to multiuser object-database-management systems (ODBMSs). Where other ODBMS companies hope to displace Oracle or Sybase or other vendors of relational-database management systems, ODI hopes to replace the very file systems that are at the heart of computer operating environments.

"The short-term issue is best GUI, best DBMS," Atwood says. "The long-term issue is the transition of the structure of operating systems to microkernels with an object manager alongside."

To the initiated, the partnership hints at a heart transplant for NeXTSTEP. With ODI and NeXT working together, observers speculate that the conventional UNIX file system might be replaced by a radically new object-oriented file system.

In February, however, NeXT's announcement of plans to drop hardware almost derailed the partnership. According to insiders, ODI's contract with NeXT called for significant revenues tied to sales of an unannounced server. Without that revenue stream, ODI executives questioned the cost of long-term collaboration with NeXT.

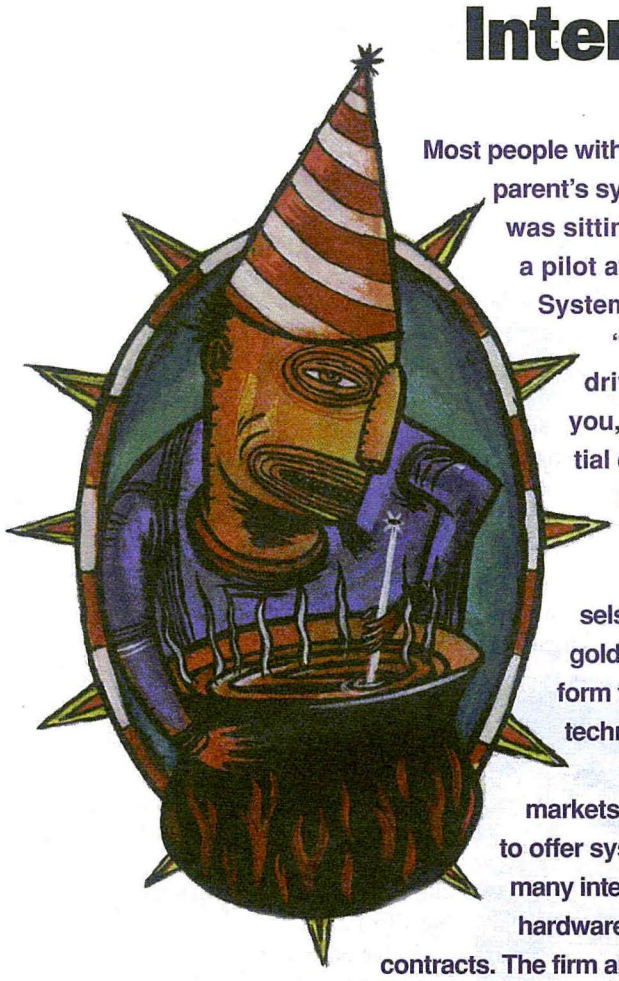
But as Atwood puts it, "We are still excited about NeXT's ability to define significant directions in software. In terms of the operating system, we have a similar vision of the future, and in terms of a GUI and a database-management system, some wonderfully complementary technology."

Atwood sees an evolution taking place in computing. Character-based, record-oriented data structures have evolved from simple files to databases that allow retrieval of records based on relationships between records. Now we have objects, and the data no longer has to be character-based. But storage systems have not yet evolved from storing objects ☞ PAGE 13

PHOTOGRAPH BY RAYMOND MEEKS

International Alchemy

INTEGRATOR



Most people with killer business plans and no funding are lucky to have a parent's sympathy. Dale Pratt's dad, Jim, went one step further. He was sitting on a fat pension fund accumulated over 25 years as a pilot at United Airlines when he agreed to bankroll Alembic Systems International.

"It seemed like there was a tremendous opportunity driving him crazy, so I said, 'Fine, if no one else will fund you, I will,' " says Jim Pratt of his COO son, who has substantial experience in systems integration after six years selling NeXT's for the United Kingdom's Metric, Businessland, and Random Access in Denver.

The company they founded is named for the glass vessels alchemists use in the transformation of base metals into gold. "We chose the name because we act as a catalyst to transform the way people work through the application of NeXTSTEP technology," says Leann Coulter, director of communications.

She explains that Alembic is focusing on specific vertical markets such as real estate, health care, and publishing; the plan is to offer systems integration, training, and software distribution. Unlike many integrators, however, Alembic will be setting up high-perfomance hardware and software systems without huge custom-development contracts. The firm already has 12 employees, with more coming on board.

Shortly after Alembic opened its Denver offices on January 26 with authorization to resell NeXT computers, NeXT left the hardware business. The Pratts took the change in stride. "It's better for us," says Dale. "Customers who were just standing around and looking at NeXT are now willing to make a commitment because [NeXTSTEP will be running] on industry-standard hardware."

In addition to being an authorized reseller for several '486 computer lines and NeXTSTEP software, Alembic also resells Auspex servers, the high-priced, high-speed data hubs that are high on wish lists at large NeXT sites.

Alembic's offerings in its training line read like a travel brochure. One option is instruction at a customer's site; another is the Englewood, Colorado training facility in the Rockies. But most likely to capture a prospective student's imagination is Alembic's new NeXT training resort in Derbyshire, north of London. The 42-room mansion is being refurbished as a bed and breakfast, NeXTSTEP training center, and Alembic's European headquarters. The director of European operations (and innkeeper) is Businessland veteran Chris Frampton.

Alembic's European base and international focus is no accident. Dale Pratt spent two years in England and saw products being produced by European developers that needed distribution help in the United States. Conversely, many U.S. products needed representation in Europe. Filling these needs is Alembic's third business segment.

The company is already representing three European product lines in the United States: solidThinking Modeler and solidThinking Animator, a 3-D and an animation product from Gestel Italia, of Vincenza, Italy; Compose In Color and Black Box, image-manipulation software and a hardware accelerator primarily for image processing from Unter Ecker software in Wiesbaden, Germany; and France's Ares ZZVolume, an architectural CAD product.

Is Jim Pratt worried about his pension? After more than 30 years flying jets, training young pilots, and carrying hundreds of passengers in DC-10s every day, he's used to a little excitement.

by DAN LAVIN

Good Grief

ON THE NET

Traffic exploded as rumor became statement, then fact: The passing of NeXT's hardware was mourned, celebrated, and debated in 2000 messages in three weeks, 1000 of them in the first three days. Subjects like "[illegible] article about the end of NeXT hardware (looks real)," "NeXT is now just like any other computer company," and "Re: NeXT hardware sold out" marked a sad passing.

The inevitable roller coaster of euphoria and depression was at first disguised by confusion ("Re: the HP deal may be dead" next to "Re: the HP deal may become real after all"), then enlivened by the humor of a song contest ("Almost Black," "Turning Japanese (Canon)," "(Black is Black) I Want My Baby Back"), and eventually validated by *Open Systems Today* publishing Net opinions on what Steve could have done differently.

Despite the flip, smart-business move postings about how NeXT's move was the only viable one, the deep concern – and, yes, grief – of the true believers cannot be so easily passed over. As a NeXT developer, user, and evangelist of four years, I know my black hardware means a lot more to me than the die-cast magnesium it's made of, and I plan to keep using it for as long as I can. NeXT presented us with more than just hardware or software; the company's was an integrated vision of a future not dominated by the very profit-and-loss attitude now being used to justify the abandonment of a part of that vision.

Remember that NeXT did not originally set out to penetrate the mainstream: It staked out the high ground, and we all came along for the fast, exciting ride. The NeXT vision cannot be easily stated in words – and if it could, it wouldn't fit here anyway. Love, too, is not expressed so easily, but we can feel when it moves us.

Change is necessary and perhaps healthy, but it must not blind us to what we have lost, nor to what we all valued that unique and integrated world we were blessed to inhabit for a time.

by CHARLES L. PERK

ILLUSTRATION BY BY ROB CLAYTON

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ARLES L. PERKINS

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by ELIOT BERGS

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by DANIEL MILES

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Next Generation

Board members and IS department staff also exhibited their commitment by working nights and weekends to lay fiber cable and wire offices and schoolrooms. Then they embarked on a comprehensive teacher-training program and established full-time support. "For years, students have had Apples on their desks, but teachers didn't understand or use them. Now, we're making the computer a teacher's tool first, and re-educating people as to what computing is: interactions, not apps," Lynn explains.

Lynn's IS staff is building interactive networks with far-reaching technical capabilities. Under a new state law, all schools are required to maintain a complete portfolio of each student's schoolwork for 99 years; Lynn has plans to purchase an Auspex NS 5500 to house student papers, presentations, artwork, and grades. The huge server will also store teacher curricula and syllabi. But the most ambitious project may be a real-time video library that Lynn is beginning to build with help from vendors such as GTE and Xerox's PARC. By summer, Lynn should have a Switch 56 system in place to take advantage of his fiber-optic TCP/IP backbone, allowing the district office to broadcast meetings, conferences, or even special lessons to every site in the district.

On the student side, the journalism classroom at Rancho Verde High is being used to produce and edit the school paper and yearbook. With help from Imagine Multimedia's Callisto CD-I authoring tool, students are also producing the yearbook on CD-ROM. In addition, students can now build presentations from a library of source images residing on a server at the California Museum of Photography in Riverside; when the video system is in place, students will be able to take virtual tours through the galleries with a resident art historian. And any item in any school's library can be accessed using a catalog system developed by Virginia Tech that runs on top of Sybase.

Jim Smith, busy at his desk designing an algebra curriculum based on the calculus-lab model, is also experimenting with using Diagram! as a shapes-based modeler for lower-level math instruction. But he has to pause for a minute. Nathan Cass and another student have questions about the screen graphics on a new game they've downloaded, and bringing the next generation up to speed is what Smith's job is all about.

by ELIOT BERGSON

Logical Partner

in files to object databases that retrieve objects based on their relationships with each other.

Of all the partners ODI has worked with, Atwood says, "NeXT understands this best and has even pushed a little ahead of schedule." Despite changes in NeXT's business model and the need for its partners to renegotiate contracts, Atwood feels the collaboration will stay on track.

Why? Because Atwood sees Steve Jobs as a fellow disciple of turn-of-the-century logician Gottlob Frege. "Before Frege's time, all of Aristotelian logic worried about objects that had properties. But it wasn't possible to express a relationship between two objects. Frege changed that. Steve Jobs is a successor to Frege."

by DANIEL MILES KEHOE

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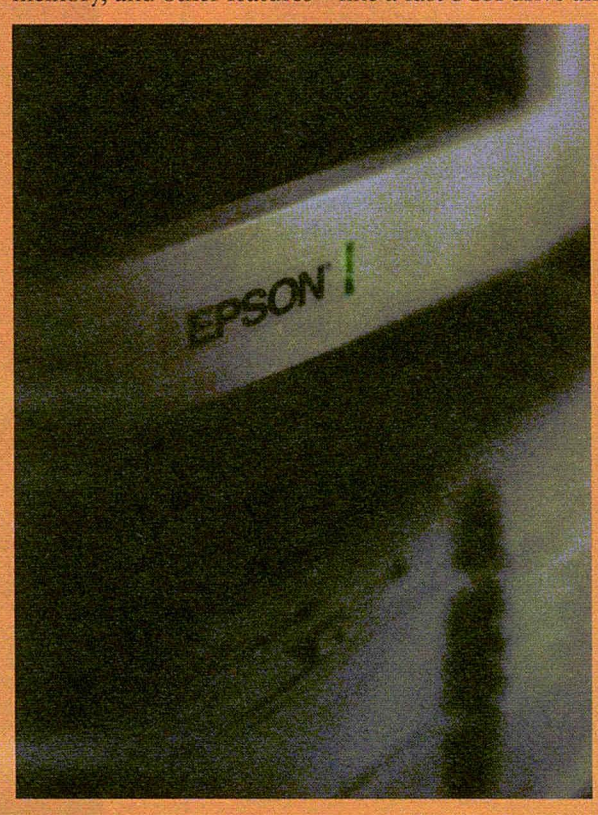
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Alliance for Progress

HARDWARE PARTNER

WITH NEXT OUT OF THE HARDWARE BUSINESS, THE NORTH AMERICAN AFFILIATE OF JAPanese conglomerate Seiko Epson is looking at a new market and seeing, of all colors, black. Officials at the Torrance, California, company are confident that its new 66M DX/2 '486 Progression will run NeXTSTEP as fast as, or faster than, Motorola-equipp NeXTstations.

The machine, one of three new high-performance computers making up the Eps Progression family, offers accelerated graphics and enough expansion slots, syste memory, and other features – like a fast SCSI drive and an internal CD-ROM drive please the most jaundiced wor station user.



Epson's confidence in its Progression computers is base on a strong relationship with NeXT; the companies have be talking since the spring of 19 when NeXT became interest in the possibility of using th 66MHz machine as a portin platform.

The machines were not designed with NeXTSTEP i mind, according to Epson Vic President of Product Manag ment Steve Huey. The Progre sion family, which includes co puters with 25MHz '486SX a 33MHz '486DX processors i addition to the 66MHz DX2 model, was built for applicat running under other graphic vironments, such as the curr version of Microsoft Windo

"But NeXT's engineers u the Progression found that be copies of the environment worked very well . . . and that the hardware's under ing graphics acceleration [which is coupled to the Progression's CPU] helped i performance," Huey says.

Both companies emphasize the importance of getting customers everything t require, right out of the box. "Epson's solution is plug and play, just like we use to provide from our factory in Fremont," says David Wertheimer, NeXT's OEM ch nel manager. "We believe our customers will see Epson as a highly optimized platfor for development and deployment of NeXTSTEP."

The other product Epson is introducing for the NeXTSTEP market fits equally w into NeXT's plans. The Epson NX model – officials are calling it the "NeXTSTE deployment system" – is the client part of NeXT's favored client-server equation. I a cost-effective system configured specifically for mass deployment of the NeXTST operating system and released to coincide with NeXT's official introduction of NeX STEP for Intel.

There is also a chance that NeXTSTEP users will have access to Epson's bread an butter: printers. "It's a safe bet that we're working on drivers that will allow NeX STEP for Intel users to send files to inexpensive Epson desktop dot-matrix printers," Huey says.

Huey figures there isn't really a downside to Epson's relationship with NeXT. "I have a computer that fits nicely into our line, and runs NeXTSTEP for Intel very we and we're not dependent on NeXT. But it's exciting to work with a company that ap pears to be reinventing the PC industry."

by JIM FORBES

PHOTOGRAPH BY DAVID MA



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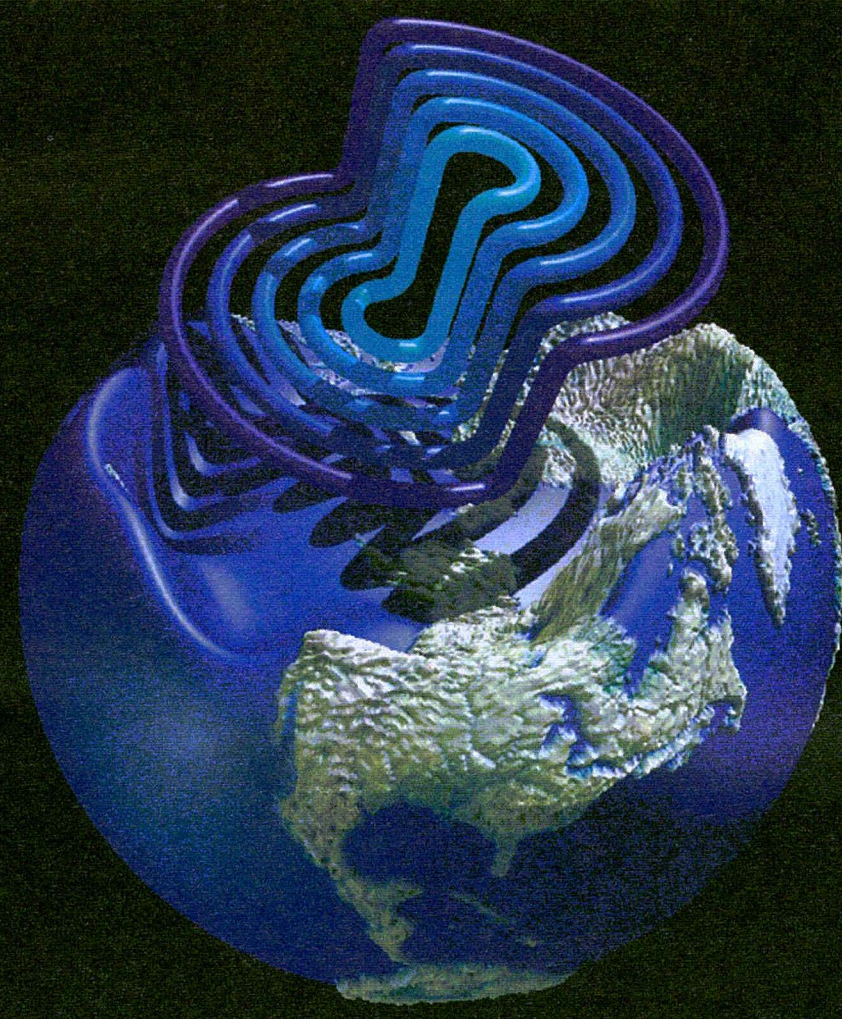
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NUGs React

USER GROUPS

"It's a whole new ball game." That was Hugh O'Neill's conclusion after a frenetic Washington (DC) Area NeXTSTEP User Group meeting that fell on the very day NeXT announced it would cease manufacturing hardware. And as NeXT users came together at 420 NUGs around the world to question or applaud NeXT's traumatic transformation from black to white, "new" summed it all up.

The Bay Area NeXT Group tried to answer its members' questions by going straight to the source: A week after the announcement, Steve Jobs, Peter van Cuylenburg, and several other NeXT executives appeared before BANG, with further discussion by a panel of local users and developers. Almost 300 people showed up, including numerous NeXT employees and alumni. After Jobs's presentation, he asked members of the audience how they felt about the transition. Nearly 60 percent felt better about the company than they did before, 25 percent felt the same, and only 15 percent felt worse. Still, one BANGer characterized the meeting as a "wake."

In other quarters, the uncertainty was equally evident. Shawn Broderick, co-director of the Boston Computer Society NUG, comments, "The debate fell into two camps, one saying 'NeXT should have done this years ago,' and the other saying 'Oh no! The fabulous hardware is gone, and the vision we bought into is gone.' " The Boston membership was split 70 percent to 30 percent in favor of the transition. Bob Bajwa saw the same at the Vancouver NeXT User Society (VNUS): "Some were happier to see a cheaper alternative; others said that NeXT hardware was a well-integrated bargain, a machine that 'just works.' "

By the time of NeXT's announcement, however, some NUGs had already seen the beginnings of another split, between those determined to promote NeXTSTEP as a way to leverage commodity hardware and a "More Power" contingent that saw the system's greatest potential in ports to high-performance architectures from HP, Sun, Silicon Graphics, and IBM.

Gotham Users of NeXTSTEP (GUN) President Paul Murphy argues, "To make effective use of high technology, you need high-end hardware solutions. Period." From Chicago, Jon Landwehr notes that "the financial people are worried about whether the '486 will have enough power to handle their real-time analyses." But Rocky Mountain NUG President Barb Dyker finds "the switch to Intel doesn't make it any cheaper – it'll cost you as much if not more, but it gives you flexibility in who to purchase from, and in hardware support." Similarly, John Glover of HaNG, the Houston group, sees great enthusiasm for Intel platforms but "no real, immediate demand for RISC machines."

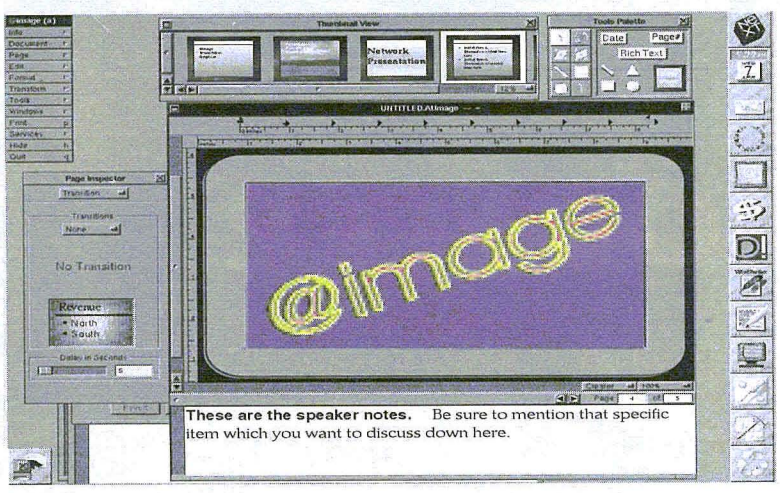
Of course, NUGs aren't mere spectators to this changeover; they will need to adapt to the new world of "computerless computer user groups" just as thoroughly and decisively as NeXT has become a "computerless computer company." The theme of the 1993 International User Group Conference at NeXTWORLD Expo in May – '486: An Explosion of Users Under NeXT's Big Tent – mirrors this challenge.

Steve Macbeth, VNUS president, expects the hardware diversity to make it harder for groups to stay focused, but that there will be a payoff. "Up until now, there have been a certain type of people involved [with NUGs]: risk takers and early adopters. Now, a lot more people will be able to buy it, and we'll have a real challenge adapting to this influx. Six months after the Intel release, our members will have so many different reasons to use NeXTSTEP that it will be hard to accommodate them all," he says.

Robb Allan, Macintosh veteran and founder of GUN who is establishing a NUG in Florida, says the doubters are not looking at the big picture. "Developers are happy, businesses with a capital investment in NeXT hardware are disappointed, naysayers are sticking their tongues out, but in the long term this is a courageous step. The future is software."

by ROHIT KHARE

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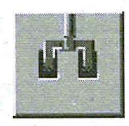


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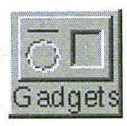
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In the Loop

several times with Steve Jobs in the summer of 1991, Opfer approved a major buy of NeXT workstations. In the process, he doubled NeXT's successful business in the defense community.

Sticking his neck out for innovative technology was nothing new for Opfer. Earlier in his Air Force career, he had the task of modernizing computers and communications in the Reagan White House. There, he introduced e-mail, portable computers, and video-conferencing systems, long before the rest of the world discovered these technologies.

Since retiring from military service last fall, Opfer has extended his enthusiasm for technology to the commercial world through free and paid consulting. He describes his role at NeXT as something akin to a "rent-a-VP."

He advises NeXT executives on strategic issues, often telling NeXT CEO Steve Jobs things he may not want to hear. He is also actively involved in NeXT interactions with customers and integrators. He played a key role in the formation of ProNeXT, an organization of about 20 large NeXT customers that has come to have an influential voice in NeXT's directions and priorities.

On a typical day, Opfer is in transit from his base in Los Angeles to a meeting in Denver. On the flight, he'll pound out 30 or more e-mails on the HP 95 palmtop PC that serves as his mobile command center. Upon arrival, he turns on a radio transmitter, bursts out the stored messages and sucks in the dozens of responses to his last batch. In a recent month, Opfer sent and received more than 7MB of e-mail over RadioMail.

For all his emphasis on technology, Opfer's main interest is people. "I don't care about technology for its own sake. It's how people use technology that solves problems. In an age where everything moves so fast, getting the right brains together can change history. For me, that's how you can make a difference."

by DAN RUBY

CHaRTSMITH™ is the presentation quality charting and graphing package for NeXTSTEP®. CHaRTSMITH combines high quality graphics and an intuitive user interface to make creating spectacular charts as easy as drag-n-drop. Multiple chart types, powerful template features, and API support make CHaRTSMITH your one-stop-charting application for NeXTSTEP®.

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For people working with large images, but without passion, we developed the *BlackBox*, a high-end hardware accelerator which speeds up all actions in *ComposeInColor*, including retouching and automatic selections, by a factor of twenty. With 75 mflops (a NeXTdimension has 2 mflops), up to 512 megabytes user-installable memory, and a 12.5 megabytes per second Fast-SCSI 2 interface it is the fastest hardware available for desktop image editing. The *BlackBox* is compatible with all computers running NeXTSTEP.

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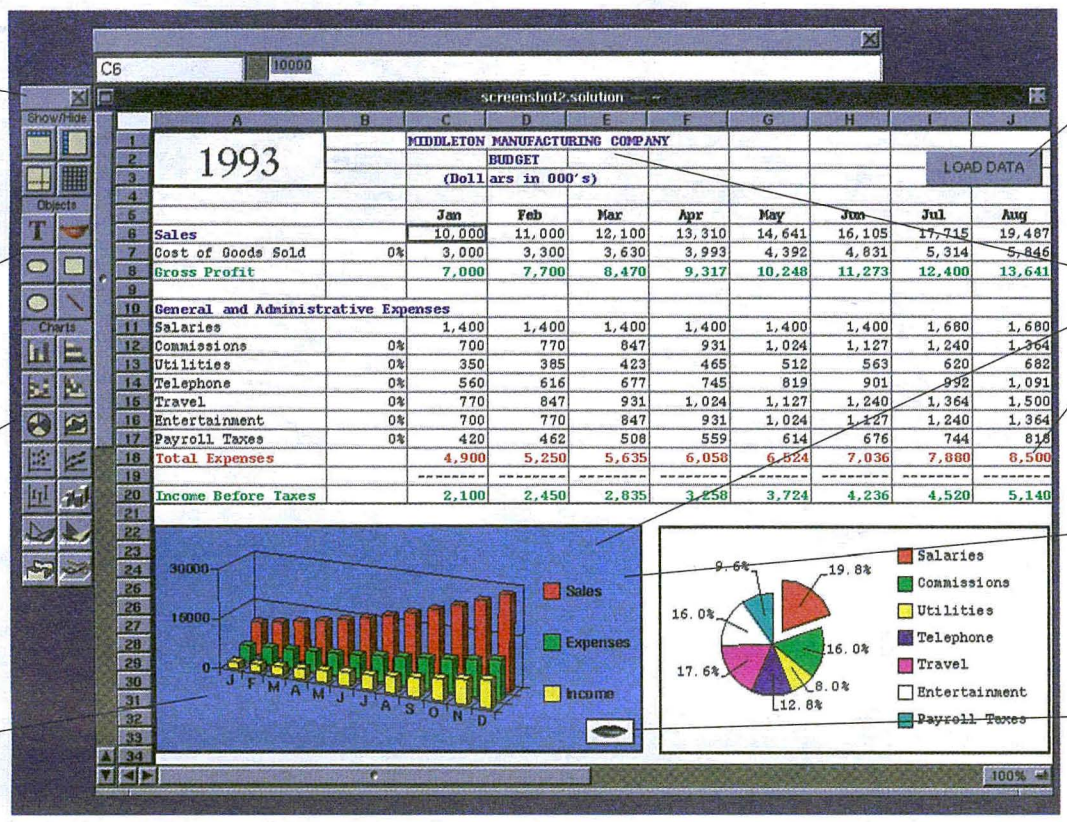
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NeXTWORLD

NEWS IN BRIE

Watershed Technologies was expected to ship GraphRight, a presentation-graphing application for business and financial use, at NeXTWORLD Expo. The $375 program includes full featured drawing tools, 18 graph types, and a basic word processor with spell-checker, rich text object linking, and color support. Watershed: 508/460-9612

Complete Access, a database access tool that combines report writing, forms, outlining, and charting, will ship at Expo from Ocean Software. The $495 program can be used with Sybase, Oracle, or any other SQL database with an available adapter. Ocean Software: 904/363-1646

Ridgeback Solutions is shipping NetWatch, a network-management solution based on the Simple Network Management Protocol (SNMP). The $1995 software, which includes ten SNMP agents, lets network administrators running NeXTSTEP monitor SNMP devices, including routers, bridges, and hubs. A version for NeXTSTEP for Intel due is in June. Ridgeback Solutions: 310/456-6094.

Fore Systems announced the NXA-100 ATM (Asynchronous Transfer Mode) Computer Interface for NeXTcube workstations. The NXA-100 turns NeXT LANs into ATM-based LANs, supporting high-speed data and distributed-multimedia networking applications commonly run on NeXT workstations. It also supports TCP/IP. Pricing for the adapter starts at $3995, including system software. Fore: 412/967-4040.

Alembic Systems International has become the U.S. distributor for two more European products: Compose in Color (CIC), a $995 NeXTSTEP photo-manipulation package from Unter-Ecker Software, of Wiesbaden, Germany; and ZZVolume, a $3000 architectural

[CONTINUED ON PAGE 26

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NEXTWORLD EXTRA JUNE 1993

NEWS IN BRIEF

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NeXTSTEP 3.1 release near final

by SIMSON L. GARFINKEL

San Francisco – Three months after putting all its eggs in the software basket, NeXT was set to roll out its future – NeXTSTEP for Intel Processors – at NeXTWORLD Expo here.

The company will ship near-final releases of NeXTSTEP 3.1 for Intel and Motorola systems at $795 for the user environment and $1995 for the developer environment. Final releases will ship later this summer.

In the past, a NeXTSTEP license includ- [SEE 3.1, PAGE 26]

PCs make Expo premiere

by DAN RUBY

San Francisco – With names like Compaq, Dell, NEC, and Epson on the marquee, attendees at the second NeXTWORLD Expo here may feel they arrived at the wrong show. On closer inspection, however, they will find that every PC is running NeXTSTEP.

Marking the debut of NeXTSTEP as a software-only product line, NeXTWORLD Expo will also serve as the coming-out party for the seven PC manufacturers who endorsed NeXTSTEP as an operating system available on their most advanced 80486- and Pentium-based personal computers.

"We think that NeXTSTEP is second to none as a desktop-based object-oriented development environment," said John Paul, Compaq's vice-president of system software. "Many of our large customers are interested in deploying NeXTSTEP widely on Intel systems, and we want to assure they choose our hardware."

Five companies – Epson, NEC, Dell, Data General, and Siemens-Nixdorf – will offer fully configured PCs factory installed with NeXTSTEP. Compaq and Hewlett-Packard will certify certain models to run NeXTSTEP. NeXT will also publish a list of other NeXTSTEP-capable systems from major manufacturers.

The hardware partners will offer the NeXTSTEP systems through their own distribution channels, while NeXT takes responsibility for creating demand and steering sales to the PC makers.

For buyers who could previously run NeXTSTEP only on NeXT hardware systems, the lineup of systems means they can choose appropriate NeXTSTEP systems based on performance, price, and vendor relationship. Buyers will enjoy a choice of competitive systems in every category, from high-performance desktops to lightweight notebooks. [SEE PCS, PAGE 26]

Intel-based products make European debut at CeBIT

by DAN LAVIN

Hannover, Germany – Two months prior to NeXTWORLD Expo, excited crowds examined NeXTSTEP and third-party applications running on Intel-based hardware during the CeBIT show here. Over 25,000 attendees were estimated to have visited one of the two booths devoted to NeXTSTEP technology.



Crowds fill NeXT's d'ART partner booth.

At its main booth, NeXT featured several hardware platforms running NeXTSTEP, while a partner booth organized by d'ART, a $10 million NeXTSTEP-only reseller, showcased third-party software applications – many running Intel.

"The reception to our offerings by both customers and partners was extremely positive, even more so than we anticipated," said Bernhard Woebker, NeXT vice-president for European sales and marketing.

Among the news makers:

- NeXT completed a major OEM agreement with Siemens-Nixdorf, the second-largest PC supplier in [SEE CEBIT, PAGE 23]

NeXT not ready to be COSE

by SIMSON L. GARFINKEL *and* DAN LAVIN

San Francisco – NeXT was conspicuously absent when six major UNIX system developers announced in March they were joining forces to develop a unified UNIX environment that will work across platforms to give users and developers a consistent look and feel. But ongoing negotiations between NeXT and several COSE partners suggest that NeXT may yet cozy up to the alliance, sources reported.

The founding members of the Common Open Software Environment, or COSE, are Hewlett-Packard, Sun Microsystems, the Univel subsidiary of Novell, the Santa Cruz Operation, and UNIX Systems Laboratory. Although NeXT had been in discussion with "some but not all of the members of the alliance prior to the announcement," said Brett Bachman, director of product marketing at NeXT, the company was not "able to finalize any relationships" in time for the announcement.

Instead, [SEE COSE, PAGE 24]

Canon talks continue

by DAN LAVIN

Redwood City – Despite reports to the contrary, talks at press time continued between Canon and NeXT for transfer of the hardware division and factory. But a drain of personnel had added an urgency to completing the deal.

"We will buy the hardware division," said a Canon spokesperson. "We are hoping to finish the deal by [NeXTWORLD] Expo."

Canon had agreed in principle to acquire NeXT's Fremont, California, factory and hardware-design center, form a business unit, and hire [SEE CANON, PAGE 26]

SQL server options expand

by DANIEL MILES KEHOE

The release of several new low-cost database servers should help promote NeXTSTEP's emerging role in enterprise computing.

Parabase Software (formerly IP Design) will release Gupta SQL-Base Server, a data server popular among DOS and Windows users. It is targeted at Parabase users frustrated at spending several thousand dollars for Sybase or Oracle servers, said Robert Dyas, Gupta president. The NeXTSTEP-for-Intel version starts at $995.

Blue Rose Systems planned to release at Expo a low-cost SQL server starting at $395 called Rosebase. President M Carling, who heads the Bay Area NeXT Group, distinguishes Rosebase by emphasizing the importance of query-based decision support. "Sybase or Oracle servers have strengths in on-line transaction processing, but that's not why you'd run a server under NeXTSTEP."

Also due at Expo was QuickBase from SofDesign Solutions of Greenwich, Connecticut. Available to NeXTSTEP developers in beta form for a year, QuickBase will start at $695.

The most interesting entrant in the server race may be Borland International. Sources said that NeXT customer Abbott Labs contracted with Borland to port its Interbase database-management system to NeXTSTEP for Intel. With versions now finished for both 68040 and Intel NeXTSTEP, Borland is expected to market Interbase as the first distributed database server for NeXTSTEP.

Sybase SQL Server, which was included for free in early versions of NeXTSTEP, will not be offered for NeXTSTEP for Intel or other versions of NeXTSTEP. Sybase will, however, continue to supply NeXTSTEP client libraries for database developers.

NeXTSTEP plays HyperCard

by LEE SHERMAN



HyperSense is an authoring system that lets you create hypertext documents, business presentations, and interactive tutorials.

Fort Collins, CO – More than three years after it was announced, HyperSense authoring software is shipping from Thoughtful Software. The prerelease version features a nearly identical scripting language to Apple's HyperCard and can import HyperCard stacks.

HyperSense takes full advantage of NeXTSTEP features like CD-quality sound, full-color PostScript graphics, object-oriented drawing tools, and rich text.

Other features include full word processing capabilities with ruler-based formatting, embedded graphics, and a built-in spell-checker.

While it lacks the power of Xanthus CraftMan, which provides full access to the NeXTSTEP operating system, HyperSense will allow business users to more easily create hypertext documents, business presentations, databases, and interactive tutorials. In addition, developers can extend the program through the use of external commands written in Objective-C.

The prerelease version of HyperSense is $299 until May 31; users will get a free upgrade to version 1.0, which was due at NeXTWORLD Expo. After May 31, the price will jump to $499. A version of HyperSense for Intel-based computers is expected this summer.

Thoughtful can be reached at 303/221-4596.

Conextions objects for 3270 links

by SIMSON L. GARFINKEL

North Andover, MA – Seeking a way to capitalize on its experience connecting NeXTSTEP computers with IBM mainframes, Conextions has taken the heart of its popular 3270Vision communications program and turned it into an InterfaceBuilder palette that developers can incorporate into their own programs.

"We started out with a shrink-wrapped terminal emulator. We're moving towards application-development tools," said Edward Kodinsky, company president.

The new product, called 3270-Palette and scheduled for release in early May, makes it easy for developers to integrate virtual 3270 screens into custom applications. The terminal can be run completely under program control, giving developers an easy way to access data in mainframe applications from their NeXTSTEP desktops.

Conextions is also developing a program called 3270Builder, which will allow programs using NeXT's DBKit to access information in mainframe-based applications as if they were stored in a database.

Conextions can be reached at 508/689-3570.

CAD Academy opens

by DAN LAVIN

Hannover, Germany – Cube Information Systems used the CeBIT trade show here to introduce a new CAD program for NeXTSTEP. Called Academy, the two-dimensional program also supports isometric drawing.

Academy contains the engine from the company's successful Amiga product with a completely new NeXTSTEP interface. It is designed for the occasional CAD user who needs to produce technical documentation or make small changes in CAD files from large-scale systems. The product supports DXF, Illustrator, and Virtuoso file formats, as well as full cut and paste.

Cube also introduced Open End, a software driver that supports an array of plotters and shop equipment, such as lathes. Open End currently supports output to devices from Hewlett-Packard, Roland, and Graphtek.

Both Academy and Open End, which will retail for less than $1000 each, were expected to be shown at NeXTWORLD Expo.

Stone upgrades Create

Albuquerque, NM – Challenged by the release of sophisticated graphics programs from other publishers, Stone Design is beefing up its color drawing application with high-end features.

Create 3.0 supports multiple-page documents, rich text and graphics, NeXTSTEP 3.0 features such as object linking, extensive on-line help, and filters for conversion of various image formats.

Create 3.0 will ship this summer for $595. Registered users can upgrade for $99.

Stone Design can be reached at 505/345-4800.

MindShare provides a fix for information junkies

by LEE SHERMAN



Using MindShare, a workgroup can set up, track, and maintain ongoing discussions on a variety of subjects.

Annandale, VA – Pangea Corporation's MindShare, an environment for sharing information within workgroups, was scheduled to be shown for the first time at NeXTWORLD Expo.

According to Pangea cofounder Scott Moyer, MindShare, which will ship in July for $695, was designed to facilitate the formation of discussion groups within an organization. Discussion groups are similar to the news groups found on the Internet but can be set up on the fly, with access limited to members of a team.

"We realized that the most important thing about groupware is that it has to be easy to use and incorporate into your organization. Otherwise, people won't use it," said Moyer.

Groupware applications such as Lotus Notes are expensive to employ in an organization, due to the cost of consultants, training, and administration. While most NeXT sites already employ NeXTmail, Moyer believes MindShare can fill the void for true groupware applications on the NeXT

"With Mail, everything goes into a single mailbox, you can't sort messages by priority, and you have to deal with every message that comes in."

Pangea Corporation can be reached at 703/256-6871.

Goldleaf turns to tech docs

Larkspur, CA – Goldleaf System will make the case for NeXTSTEP as an integrated publishing platform with Intel ports of its eXTRASCAN and eXTRASET software, new drivers for Polaroid slide scanners and the Canon CJ10 color printer, and several new publishing utilities.

The company said it would team up with Epson America to market a complete technical-documentation publishing system, including the Epson Progressive NX computer and scanner and Goldleaf software for scanning, OCR, and high-resolution output. Goldleaf will also jointly promote an imagesetting solution with Linotype-Hell.

The new Canon and Polaroid drivers are among several other new products that Goldleaf is readying for Expo. Goldleaf Systems: 415 257-3515.

'486 developer offerings ready

With the unveiling of NeXTSTEP for Intel on May 25, users won't have to go begging for applications to run under the new OS.

Products for NeXTSTEP for Intel include Athena Design's Mesa spreadsheet, WordPerfect Corporation's word processor, Lighthouse Design's Diagram! 2 and Concurrence whiteboard and presentation packages, Imagine Multimedia's Callisto CD-I authoring tool, Xanthus International's CraftMan scripting software, Sarrus Software's Pencil Me In scheduler, and Adamation's What's Happening? and Who's Calling? groupware.

"We leveraged our development techniques for '040 machines," said Stephan Adams, president of Adamation.

Fast puts v

by DAN LAVIN

Hannover, Germany – Video turns to NeXTSTEP with the int duction at CeBIT here of Scree Machine from Fast Electronic

Incorporating the same Phi chip set used in the NeXTdim sion board, the 16-bit board f NeXTSTEP PCs is paired wit SM Camera software. It will s as a bundle for about $1200 i Germany.

Screen Machine is fully digi and supports inputs in PAL, NT and SECAM formats, as well

Decision mal

by DAN RUBY

Palo Alto, CA – Spreadsheets great for ad hoc decision makir but full-scale information syste require a more robust modelin system. WhiteLight Systems fi that need in the NeXTSTEP ma ket with a sophisticated progra for building decision-suppor management-information, ar executive-information system

WhiteLight/Engineer is use to build *n*-dimensional inform tion structures that are immedi ately deployable as productio

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Fast puts video on screen

by DAN LAVIN

Hannover, Germany – Video returns to NeXTSTEP with the introduction at CeBIT here of Screen Machine from Fast Electronics.

Incorporating the same Philips chip set used in the NeXTdimension board, the 16-bit board for NeXTSTEP PCs is paired with SM Camera software. It will sell as a bundle for about $1200 in Germany.

Screen Machine is fully digital and supports inputs in PAL, NTSC, and SECAM formats, as well as videotex. Intel's new INDEO video-compression standard is also supported. An optional $600 tuner supports live television signals.

Unlike the NeXTdimension, Screen Machine supports resizable video windows. SM Camera allows for frame grabbing and compositing on the fly.

Munich-based Fast Electronics is the market leader in Europe for video-capture boards, according to Wilfried Beeck, head of d'ART Computersysteme GmbH, who planned to show Screen Machine at NeXTWORLD Expo.

Decision making made easier

by DAN RUBY

Palo Alto, CA – Spreadsheets are great for ad hoc decision making, but full-scale information systems require a more robust modeling system. WhiteLight Systems fills that need in the NeXTSTEP market with a sophisticated program for building decision-support, management-information, and executive-information systems.

WhiteLight/Engineer is used to build *n*-dimensional information structures that are immediately deployable as production systems for such applications as financial consolidation and reporting, business planning and budgeting, and financial analysis.

Shipping since March for '040 systems, WhiteLight/Engineer 1.5 for Intel systems was due to ship in mid-May. Depending on the number of licenses at a site, the program is priced at $500 to $5000 per seat. Versions of the software for system architects, analysts, auditors, and administrators will follow at a later date.

WhiteLight Systems can be reached at 415/321-2183.

Systemhouse focuses object vision with new NeXTSTEP tech center

by ELIOT BERGSON

Boulder, CO – Systemhouse, the large Canadian integrator responsible for fashioning NeXTSTEP solutions at several corporate sites, opened an object-oriented technology research-and-development center in April called the Object Technology Center (OTC).

The center plans to offer "mentored" integration and application development at worldwide offices and corporate sites, access to a central object repository, and periodic white papers on advances in object-oriented technologies, with an emphasis on NeXTSTEP.

"Today, consultants and integrators come in, tell you your problem and write an app for it. There's no exchange of knowledge in either direction," said Vince Jordan, vice-president of Systemhouse's object technology group. "We want to teach people to fish rather than give them a fish."

The OTC will offer working partnerships to corporations and organizations seeking to build custom apps and better understand object-oriented software development. By working directly with corporate developers and giving them access to the object repository and state-of-the-art development methodologies, "we can bring technology intelligence back into a firm and stop all this outsourcing, which puts the cutting edge [of technology] outside the firm," said Ted Shelton, founder of Chicago-based IT Solutions and now the center's director.

In addition, the OTC is negotiating to work closely with the University of Colorado's Research Center and offer "two or three" yearly fellowships to bring students into the OTC's development teams. "We want to get students who will join corporations versed in NeXTSTEP," Shelton explained.

OTC: 303/449-2874.

CeBIT

[FROM PAGE 21]

Europe, to sell PCs preloaded with NeXTSTEP software. Linotype-Hell will use Siemens' PC as the base for its Signastation prepress machine.

• Intel formally introduced the Pentium processor, which promises performance two to three times faster than the '486. d'ART took orders for several hundred of its d'ARTstation, an OEM box made by Intel.

• d'ART showed a new version of Dots, a program for using non-PostScript laser, dot-matrix, inkjet, and dye-sublimation printers running under NeXTSTEP. It also showed VarioData, a flat-file database.

• HSD showed improved Scan-X Color software incorporating CIE color-space capability.

• tms GmbH premiered three modules for its 1Vision publishing system. The Lanston, Cranache, and Manet modules are for layout, image processing, and drawing, respectively. English versions will be available and final pricing determined at Expo.

• i•Link announced an enhanced Intel version of its Mix phone product that does not rely on the DSP chip formerly in NeXT hardware.

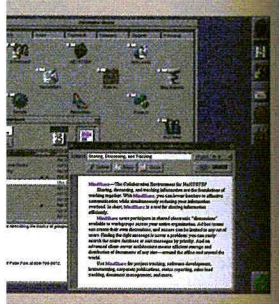
• Rounding out the new software offerings were radio-station-management software by Digital Collections; an accounting package by Wehsner that comforms to European standards; and U.S. third-party applications, including Concurrence and DataPhile.

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publishing utilities.
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ware, Sarrus Software's Pen-
Me In scheduler, and Adama-
's What's Happening? and
o's Calling? groupware.
We leveraged our develop-
t techniques for '040 ma-
es," said Stephan Adams,
ident of Adamation.

BUSINESS NEWS

Reaction to hardware loss mixed

Developers will 'wait and see'

by LEE SHERMAN

While most NeXT only developers have moved quickly to post their applications to Intel systems, some large cross-platform developers are sitting on the fence.

Dano Ybarra, marketing manager for Adobe's display products group, confirmed rumors that Adobe is taking a wait-and-see attitude toward the continued development of Illustrator and other applications for NeXTSTEP. Ybarra added that NeXTSTEP is the best showcase for Adobe technologies such as Display PostScript and PostScript Level 2, and the company will continue to support NeXT's efforts in those areas. Adobe also planned to exhibit at NeXTWORLD Expo. "We will be showing Display PostScript running under NeXTSTEP on an Intel computer, along with our development tools," Ybarra said.

Frame Technologies' current plans include continued support for FrameMaker on Motorola hardware, while the decision to port FrameMaker to NeXTSTEP for Intel remains under consideration. "We've had people call and ask if we were going to discontinue FrameMaker on the NeXT," said spokeswoman Natalie Lingo. "It would be too soon for anyone to make that kind of decision."

WordPerfect Corporation plans to support NeXTSTEP on Motorola and Intel hardware and ship an interim Intel-based release of its WordPerfect word processor at Expo. The new version lets users drag and drop both graphics and text onto the page and includes a new on-line help system.

According to UNIX Product Marketing Manager Gordon Mella, work continues on a version of WordPerfect for NeXTSTEP that is feature and file-format compatible with its DOS, Windows, and Macintosh counterparts.

Customers still committed

by ELIOT BERGSON

NeXT's plan to infiltrate corporations with software seems to be working, as current NeXTSTEP purchasers stay the course and new customers sign on.

McCaw Cellular is seeking PC video solutions for customer-service apps developed in-house on NeXTs that don't currently fit on PC screens, said spokesman Ingvar Petursson. The firm, he said, was "very confident about NeXTSTEP '486."

NeXTSTEP's future at AIG Trading Corporation is less certain. The trading arm of AIG Insurance moved to an interim OS/2 solution when NeXT stopped making the NeXTstations for which AIG had specifically built its new trading floor, according to John Hack, manager of systems development. "We still have a very good relationship with NeXT and like what we see on 66MHz machines."

According to sources, NeXT's decision to drop its hardware also threatened a sale to the Alberta Solicitor General's Motor Vehicle Division. But negotiations between the division, system-integrator DKW Systems Corporation, San Diego–based Metrosoft, and NEC were on-going.

Other clients had no hardware qualms. Calgary, Alberta-based PanCanadian Petroleum, Canada's third-largest oil and gas company, purchased an unspecified number of NeXTSTEP-for-Intel seats, but a company spokesman said the firm "is committed to probably 60 percent to 70 of the [1330 company] desktops to go NeXTSTEP in three to five years."

Sources also reported imminent sales to United Parcel Service and Abbot Laboratories.

VARS ready to find new markets

by DANIEL MILES KEHOE

NeXT's resellers are reacting warmly to the impending release of NeXTSTEP for Intel.

"The fact that NeXT will move to '486 is very exciting," said Vinny Mullineaux, vice-president of Trirex Systems, a system integrator in Westport, Connecticut. "We see the market expanding tremendously."

Even VARs who sold NeXT hardware are unexpectedly behind the move.

NeXT hardware reseller Keith Martin, president of B Cubed in Woodbridge, New Jersey, said he's more committed to NeXT than ever. "I spent a week doing damage control. A lot of customers bought 30 to 40 units at a time. I told them they're in a better position because they can buy anyone's hardware now."

B Cubed is signing up as a reseller for Dell, Epson, and NEC PCs. It will also apply for Sun and HP authorization, based on rumors Martin has heard about ports of NeXTSTEP to SPARC and PA-RISC.

NeXT Channel Manager Erna Arnesen said, "Our value-added dealers were affected more than our VARs and integrators, but many VADs see more volume opportunity in selling a range of hardware than in just selling a proprietary box," said Arnesen. "It's a short-term adjustment and most of them are interested in moving forward with us."

COSE [FROM PAGE 21]

NeXT hopes to work with some of the companies one-on-one and to license them individual parts of NeXTSTEP, Bachman added. "We'd like to make it possible for people to use NeXT distributed-object technology but to make it work in a distributed object environment – have distributed objects running on Solaris or NT."

The announcement is widely seen as an attempt by the six companies to present a common front against Microsoft Windows NT. Customers' biggest complaint against UNIX is that there are too many versions, while Windows NT is seen as presenting users with a single interface.

"COSE leaves Windows out, it doesn't leave NeXTSTEP out," said Scott McNealy, CEO of Sun Microsystems. But he dismissed the idea that COSE would eventually embrace NeXTSTEP. "They can modify their interface to be compliant. We had to change our Open Look interface. Compromises are tough."

Board of Directors

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Warren M. Weiss	Bernhard Woebker	Brett Bachman	Paul Hegarty J.M. Hullot, CTO	Tom Lavelle

The first organizational chart ever from NeXT.

New NeXT org chart looks lean and mean

by DAN LAVIN

Redwood City, CA – Following the departure of NeXT President Peter van Cuylenburg, CEO Steve Jobs has stabilized the company's organization into a flat structure with almost all positions filled.

But with the planned buyout of the hardware division by Canon, cofounder George Crow, the last of the original five who started the company with Jobs in 1985, has left the company.

The new org chart shows that there is no longer a divisional structure to the company. A mix of five directors and vice-presidents report directly to Jobs. Twenty-two directors and managers form a second tier of middle management for the 200-person company. The remaining hardware-division employees do not appear on the new org chart because of their impending transfer to Canon.

NeXT hired former Dun & Bradstreet Software VP Warren M. Weiss as North American sales and marketing vice-president.

Perhaps the biggest new personnel change is that Jobs has relinquished day-to-day management of the software group. Paul Hegarty has been named director of engineering, with Jean-Marie Hullot becoming chief technical officer.

Despite initial fears, NeXT weathered the departure of Van Cuylenburg with few ripples. Sources said that Van Cuylenburg's departure capped months of tension with Jobs. The former president remains as a consultant and reportedly received a rich payout that reflected guarantees he received from NeXT to lure him from Mercury Communications.

Appsoft gets tough

Taking an aggressive stance against piracy, Appsoft claims that some NeXT users may be using unauthorized copies of its WriteNow word processer.

"WriteNow bundled with machines prior to October 1, 1991 was provided under a personal single-user license . . . If you bought your NeXT machine after October 1 and are running a copy of WriteNow and haven't licensed it from Appsoft, you are probably breaking the law," the company said in a press release.

Potential violators have NeXT hardware with serial numbers following NeXTstation B&W ABB0022579; NeXTstation Color ABC0009222; and NeXTcube or NeXTdimension ABA0004?

Appsoft is calling on users to register their software. Call 617-0595 or 800/428-2777.

Designated drivers from Pencom

There is a price to be paid for having a variety of peripherals and option cards available on the Intel platform: the headache of developing drivers to support them. Pencom Software, already an expert in driver production, is using its skills to help alleviate some of the pain.

Pencom engineers have been working at NeXT, almost as part of the development team, on both of individual hardware and peripheral manufacturers. The company even offered a deal to developers who need prototype drivers for use in their Expo booths.

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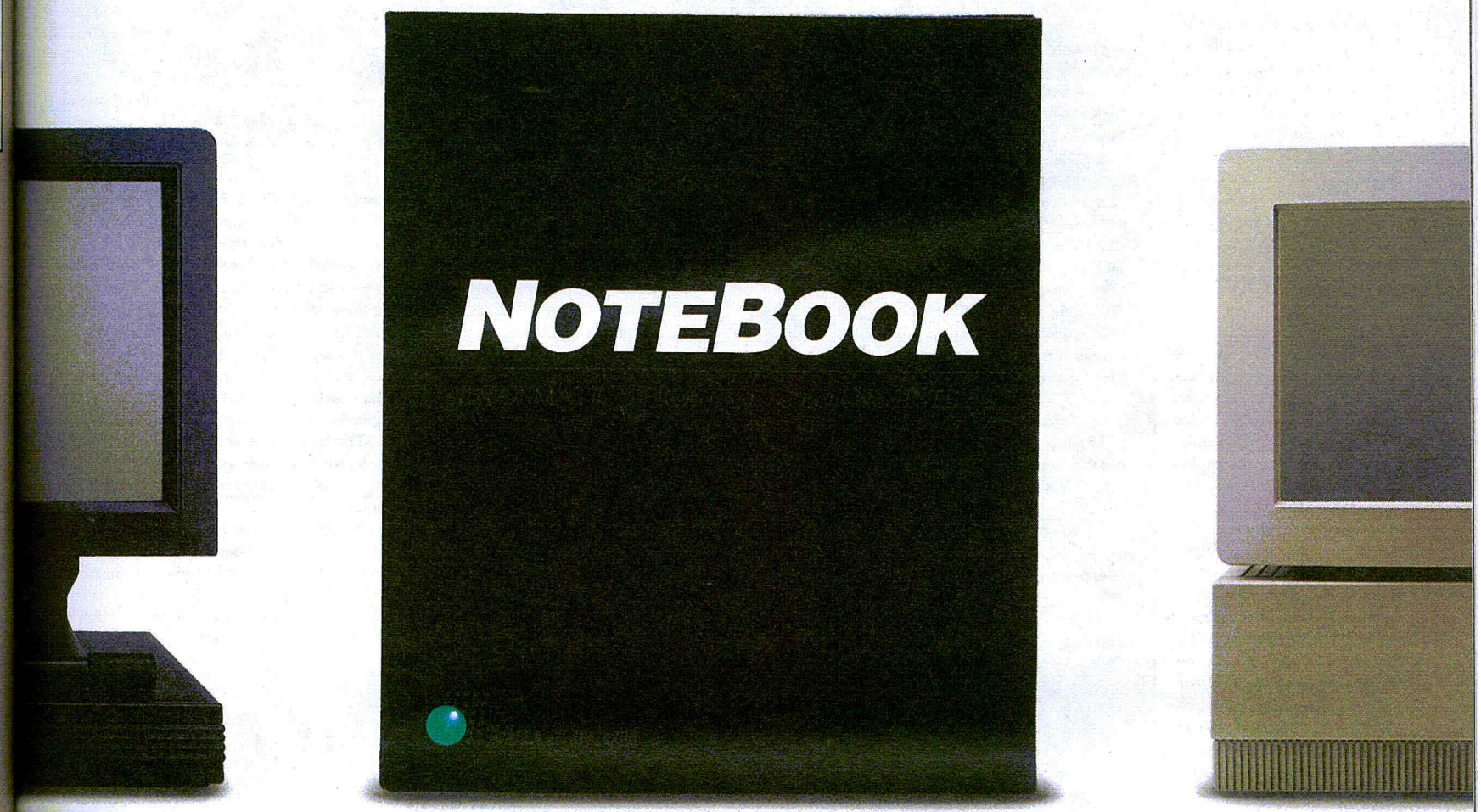
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Circle 85 on reader service card

BRIEFS Continued

CAD program developed by Ares in Lyon, France. Alembic: 303/799-6223.

Schema Research has released SchemaE for NeXTSTEP, a CASE database-design and management tool for Sybase databases that works with InterfaceBuilder and the DBKit. SchemaE communicates the design of a database as a picture and reverse-engineers the database every work session, presenting a comprehensive, up-to-date picture of the database. Pricing starts at $950. Schema: 415/368 8477.

ModemManager from Black Market Technologies is designed to help you set up and manage UUCP connections to other computers. The $99 package, which runs under NeXTSTEP 3.0, includes tested, preset modem and e-mail configurations, and supports Telebit, ZyXEL and Hayes-compatible modems. Black Market: 718/522-5090.

Hutchinson Avenue Software has two new digital dictionaries for NeXTSTEP: *Barron's Dictionary of Finance and Investment Terms* and the *Oxford Reference Dictionary of Computing*. The company also announced HRT News, which brings Dow Jones Dow-Vision news feeds to NeXTSTEP desktops. Hutchsinson Avenue: 514/499-2067.

Pinnacle Research is shipping a line of Workspace Manager enhancements for NeXTSTEP 3.0 called "Inspected by: Pinnacle." Among the inspectors, which will sell for less than $20 each, are PRISoundInspector, which provides file-format conversion and compression, as well as a horizontal scrolling window showing a sound wave form. Pinnacle: 602/529-1135.

NeXTWORLD Extra is a regular section of NeXTWORLD magazine. It is published monthly by Integrated Media, a subsidiary of IDG Communications, 501 Second St., San Francisco, CA 94107, Lt. Sullivan's column and articles about unannounced NeXT products are reported and written by contributors without guidance from the NeXTWORLD staff.

Editor: Dan Ruby; Managing Editor: Connie Guglielmo; News Editor: Dan Lavin; Technical Editor: Simson L. Garfinkel; Associate Editor: Eliot Bergson; Layout Chief: Beth Kamoroff

PCs [FROM PAGE 21]

In addition to systems from NeXT OEMs, NeXTSTEP will be sold as a shrinkwrapped software product through NeXT's network of distributors and resellers (see related story, "NeXTSTEP 3.1 release near final"). By matching the software with appropriate Ethernet, disk-control, and sound cards, users can configure NeXTSTEP systems around Intel boxes from other manufacturers.

Beyond the switch from black to white systems, attendees will find a range of software exhibited at NeXTWORLD Expo. NeXT and its third parties will stress NeXTSTEP's advantages as a client-server operating system for developing mission-critical custom applications. Others will focus on traditional NeXT markets for professional publishing, collaborative computing, and end-user productivity.

The Expo was to feature keynote speeches by Steve Jobs and Intel CEO Andy Grove, a slate of developer- and user-conference sessions, an international gathering of NeXT user groups, and new product introductions from dozens of the more than 100 exhibitors on the trade-show floor.

3.1 [FROM PAGE 21]

ed access to the entire system. Now, users need to license the user environment and developers need a separate license for the developer environment. Registered owners of Release 3.0 can upgrade the user environment for $50 per machine ($75 with CD-ROM); developers can upgrade for $99. NeXT is also offering a 60-day promotion bundling a developer license with 20 end-user seats for $1495.

Besides its OEM agreements with PC manufacturers, NeXT will offer the software through distributor Ingram Micro, which will authorize VARs and dealers to sell NeXTSTEP. In addition, NeXTConnection will sell the software via mail order; systems integrators such as Logicon, Pencom, and Linotype-Hell will provide packaged solutions; and NeXT's sales force will sell to major accounts.

Missing from the new versions is support for AppleTalk and AppleShare. NeXT is referring users who need Apple compatibility to Information Presentation Technologies. The software also lacks the native ability to run DOS and Windows programs. Instead, it will ship with a demo version of Insignia Solutions' SoftPC.

A major change in the software is its support for both the Intel and Motorola instruction sets, which NeXT refers to as Multiple Architecture Binaries. NeXTSTEP's Installer program now asks users which binaries should be installed: Intel, Motorola, or both. ProjectBuilder gives developers a choice of compiling architectures.

NeXTSTEP 3.1 is the first version of NeXTSTEP to be compliant with the POSIX (Portable Operating System Interface for UNIX) standard out of the box. Support for the government's GOSIP (Government Open Systems Interconnection Profile) network standard will be available as an add-on product.

Yes sirree, BoB

Outstanding third-party NeXTSTEP products were honored at *NeXTWORLD*'s Best of Breed (BoB) award ceremony at NeXTWORLD Expo. A panel of expert judges, including *NeXTWORLD* staff and contributing reviewers, selected winners in 13 product categories. To be eligible, products had to be shipping by May 25 with announced plans for a NeXTSTEP-for-Intel version. Look for the BoB winners in the August issue of *NeXTWORLD* Magazine.

Canon [FROM PAGE 21]

about 50 NeXT hardware-division employees. But the purchase relies heavily on maintaining the expertise of the employees, and, at press time, NeXT had lost a half of its hardware engineers, leaving about 25 still on staff. According to NeXT, the critical senior managers, including Vice-President Jon Rubinstein, remained in place. NeXT cofounder George Crow, however, has left.

Sources said that several other issues complicated the talks, including Canon's long-range plans for the U.S. market and its interrelationship with NeXT.

Rumor or reality? Sitting here in limbo

Thanks to NeXTWORLD and those over-inflated awards, Lt. Sullivan's cover has been blown wide open. Although he prefers a more illustrious handle on operations, the truth is he's plain old Bob.

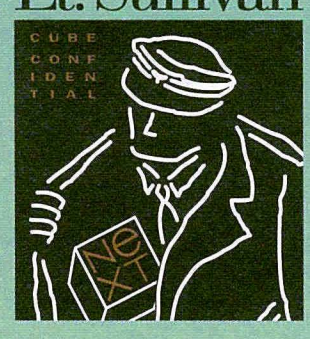
"Hey, Bob, what's cooking with NeXT's deals?" How many times has he heard that one the last two months? Sun, HP, Novell, Canon, Oracle. Deals that didn't happen, deals that haven't happened yet, and deals that may never happen.

The Intel OEM deals came together nicely in the end. Compaq went right down to the wire, while Dell got a boost when Michael Dell messaged Steve Jobs from CeBIT, "Let's get the deal on track."

HP was up and down so many times that Sullivan was leery of it even after he heard the ink was dry. Either it was dry and you already know about it or it wasn't and the details don't matter much. As Sully filed his report, the information was in that limbo between rumor and news that is the Lieutenant's particular cross to bear.

Deals that didn't happen are easier. Sun offered real money to snatch up NeXT lock, stock, and barrel. Not enough real money, however, to tempt Steve Jobs to give up the dream. Some others inside and outside the company did like it, and the events leading up to the spurned offer may have had something to do with Peter van Cuylenburg's messy exit.

Meanwhile, there is lots of buzz about Novell, but beyond the pundits and commentators, Sullivan hasn't been able to find anyone who can confirm the level of interest in Utah.



Not every deal involves NeXT. Lighthouse Design is rumored to be negotiating with Lotus for the NeXTSTEP rights to Lotus Improv. Meanwhile, Lighthouse's new project-management app, TaskMaster, which is announced on the inside front cover of this magazine, won't quite be ready for prime time at Expo but will be firmly in beta testing.

Did you notice the sign on U.S. Highway 101 a few miles north of NeXT that reads, "Wildflowers Courtesy of Allison Thomas and Associates"? This gesture of civic pride by NeXT's outgoing PR firm will sprinkle California poppies across the industrial wasteland, but under the circumstances maybe daisies would have been more appropriate. That's what Allison and company are pushing up now that NeXT has unceremoniously dumped its seven-year partner. In a kill-the-messenger move, NeXT fails to recognize that its recent poor PR was the result of its own bungling, not anything the spin doctors did or didn't do. In fact, Thomas was instrumental in maintaining whatever shred of credibility NeXT retains. Anyway, the sign stays up for a year. Sullivan wishes the Thomas agency all the best in replacing its primary account.

Moving on to the black-hardware front, the Fremont factory was reopened again to run another 1200 units to fill an order by the U.S. military and another undisclosed customer. NeXT felt that the $8 million order was worth the nominal hassle, but don't expect any more production runs. And if you're still waiting for that closed-door fire sale, forget it. About all that's left are some Color Printers.

If you could pick through whatever you wanted in NeXT hardware stocks, you might be interested in some newer ROMs. It's not well known, but you can upgrade Turbo machines to Apple Desktop Bus with a chip change. Problem is, there's no official upgrade through any channel and probably no major stock of them at NeXT either.

If you own a 21-inch NeXT (Hitachi) color monitor, you'll want to know if you can take it with you in your migration to Intel hardware. The official word is no, but a guy on the net says he made it work at the regular resolution with a Dell GDX/JAWS system by making a custom RGB cable synched on green. NeXT supposedly has special drivers that make your 21-inch work on the GDX system at 68Hz.

NEC is working hard to win the loyalty of the NeXT community. In one outrageously fun move, it has licensed the rights to *the case* of the unannounced NRW (NeXT RISC Workstation). Their idea is to produce Intel-based motherboards to fit the NRW box. NEC's current products are very hot as well, particularly the Frogg-designed Versa notebooks, the only NeXTSTEP take-anywhere machine on the market that correctly handles the suspend and resume functions.

Finally, catch these specs: 66MHz DX/2 system with 16MB RAM, 200MB SCSI disk, Wingine graphics, Intel EtherExpress 16, and 1024-by-768, 16-bit color on a 15-inch display (included) for between $3500 and $3900. The bargain product from a brand-new start-up is available in matte black for a nominal charge. For more info, ask around the Expo floor for Marty or Bob. Make sure its the right Bob, though.

Some things cost less than you think – like a booth at NeXTWORLD Expo or a Lt. Sullivan coffee mug. Your mug is free with a good tip. Send him e-mail at sullivan@nextworld.com or leave a message at 415/978-3374 (voice-mail).

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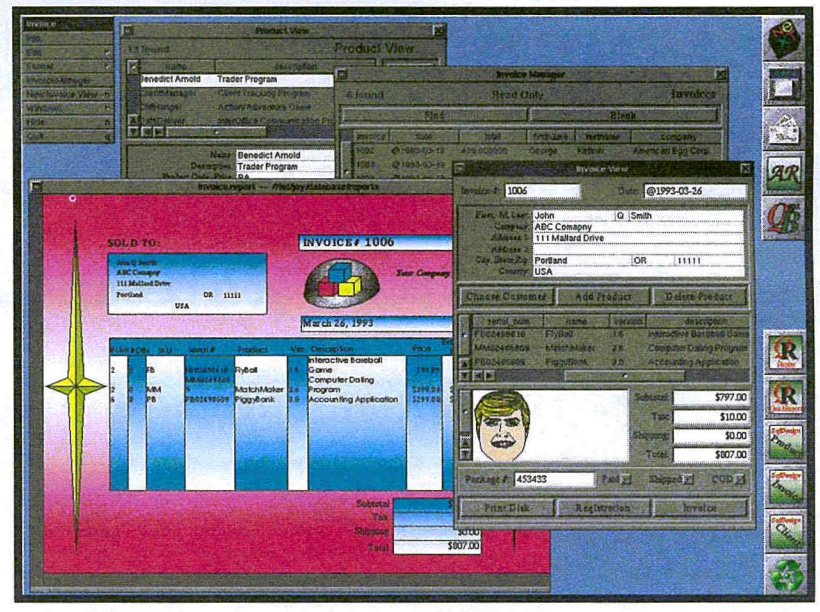
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Better Applications!

Circle 77 on reader service card

NeXTSTEP PC

Six hot configurations for every level NeXTSTEP

Forget basic black. In the wonderful new world of Intel-based hardware, you make the decision how much power you need; how much you want to pay; and where you want to buy your system. ¶ The options begin with the manufacturer of the base system. And NeXTSTEP has a heavy-hitting lineup of PC manufacturers from which to choose. Epson America, NEC Technologies, Tricord Computer, Data General, and Siemens-Nixdorf have all signed on as NeXT original-equipment manufacturers (OEMs). This means that they will sell systems preloaded and configured to run NeXTSTEP. They will participate with NeXT in comarketing activities. ¶ Other well-known names from the PC world, including Compaq and Hewlett-Packard, will offer computers certified to run NeXTSTEP. Users can also roll their own by mixing and matching appropriate systems and components. ¶ Beyond the obvious advantages of competition, the choices mean that different types of employees in a company can work on machines that are appropriate to their budget and application. The nice thing is that all the boxes are fast. ¶ To give some idea of the choices available for the NeXTSTEP buyer, *NeXTWORLD* has put together six sample configurations, ranging from a high-end fantasy machine to an entry-level workstation with a pair of options for road warriors. BY DAN RUBY AND DAN [illegible]

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ND DAN LAV

FANTASY MACHINE

Base system: Future NEC Pentium-based tower

Summary: The ultimate NeXTSTEP-for-Intel machine. Everything is maxed out with the best available components.

Typical user(s): Central compiling machine at an application development house; power users who can afford it.

Price as configured: $14,000 (NeXTWORLD estimate)

Competitive systems: Pentium models from Compaq, Dell, NCR, HP

Detailed configuration:

Processor:	Pentium 66MHz	Storage:	1GB
Graphics:	PCI ATI Mach 32	Ethernet:	Intel Ether Express 16
Resolution:	1280-by-1024 color	Disk control:	DPT 2012 with 16.5MB cache
Backplane:	EISA	Monitor:	21-inch NEC 6FG (smaller monitor pictured)
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Base system: Epson Progression NX

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Competitive systems: Data General LE Series, NCR 3333, AST Prinmia

Detailed configuration:

Processor:	'486 66MHz DX/2
Graphics:	Wingine
Resolution:	1024-by-768 color
Backplane:	ISA
RAM:	36MB
VRAM:	2MB
Storage:	525MB
Ethernet:	Intel Ether Express
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rice as onfigured	$6500 (NeXTWORLD estimate)
ompetitive ystems	Compaq LTE Lite 4/25C, AST PowerExec 4/25SL, Altima 433D

etailed onfiguration	Processor:	486SL 25MHz	
	Graphics:	VGA	Ethernet: Docking station w/Intel Ether Express card
	Resolution:	640-by-480 grayscale	
	Backplane:	Optional ISA docking station	Disk control: Built-in IDE
	RAM:	12MB	Monitor: 9.45-inch active matrix
	VRAM:	1MB	Sound: None available
	Storage:	120MB	



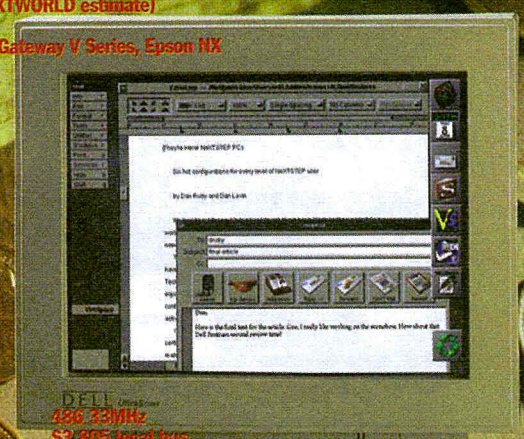
"You've got to see it. NeXTSTEP is great running on our state-of-the-art notebook."
– David Middleton, director of marketing, NEC

EC Technologies
414 Massachusetts Ave.
oxborough, MA 01719
08/264-8000, 800/632-4636

ECONOBOX

ase system	Dell 433/L
ummary	Entry-level system for users with limited needs or budget. Equivalent performance to 25MHz '040.
ypical user(s)	E-mail users, clerical workers
rice as onfigured	$2500 (NeXTWORLD estimate)
ompetitive ystems	HP Vectra, Gateway V Series, Epson NX

etailed onfiguration	Processor:	486 33MHz
	Graphics:	S3 805 local bus
	Resolution:	1024-by-768 color
	Backplane:	ISA
	RAM:	8MB
	VRAM:	1MB
	Storage:	120MB
	Ethernet:	SMC Ether Elite 16
	Disk control:	Built-in IDE
	Monitor:	15-inch Dell color
	Sound:	None



"Dell has won 161 customer-satisfaction polls. That's a true recognition of value."
– Dennis Jolly, group vice-president, Dell USA

Dell Computer Corporation
9505 Arboretum Blvd.
Austin, TX 78759
512/338-4400, 800/289-3355

READY TO SELL

PC manufacturers are pursuing the NeXTSTEP market with varying degrees of enthusiasm. NeXT had cultivated the relationships for more than a year, with interest levels rising after NeXT exited the hardware business in February.

Epson views the NeXTSTEP market as a near-term opportunity, working first with the existing customer base and then supporting NeXT in jointly developing new accounts, according to Steve Huey, vice-president of PC products management for Epson in Torrance, California. "Our projections show NeXTSTEP growing significantly in the next few years. We want a healthy share of that market," he says.

For Data General, which is positioned as a supplier for client-server systems, "the vast majority of NeXTSTEP systems will be sold in environments where databases are running on the server. We'll sell NeXTSTEP into medium-to-large commercial accounts that are focused on distributed computing and are looking for a new way to do it," says Christine Wallis, director of marketing for the company's NeXT business unit in Marlborough, Massachusetts.

Other suppliers view NeXTSTEP as one operating-system option among several in the emerging market for object-oriented, client-server systems. "NeXT is out there in the forefront presenting short-term business opportunities," says David Middleton, director of marketing for NEC Technologies in Boxborough, Massachusetts. "As customers begin the downsizing process, NeXTSTEP is much more cost effective than any other current technology."

Dell Computer is also interested in downsizing and object-oriented custom development, but it also sees an opportunity for volume sales. "Our customers have shown interest in all segments – corporate, government, and education," says Dennis Jolly, group vice-president of Austin, Texas-based Dell USA.

Still others remain on the fence. "Our engineering people have always been excited about it. On the marketing side, we're still waiting to see what develops," says Steve Andler, director of marketing for Toshiba America Information Systems in Irvine, California.

SIX OF A KIND

The machines profiled in this article were chosen to be representative of the options that will be available; they are not meant to suggest that a given manufacturer is recommended for, or only produces, a given level of hardware. Dell, for example, also produces high-performance screamers, while companies such as Gateway 2000, AST, and Lucky Goldstar, not included here, make a range of excellent offerings for NeXTSTEP.

Each system profile includes a detailed configuration appropriate for typical user applications. These combinations represent balanced systems of processor type and speed, graphics subsystem, bus architecture, disk controller, display, sound and networking cards, memory, and storage. For add-on cards, we selected among products for which NeXT had announced support at the time this article went to press.

The configured price that we list in each profile is *NeXTWORLD*'s estimate of the cost to a typical customer direct from the manufacturer. With discounts and special bundles, your actual cost may be considerably lower.

At the top of our line, the fantasy machine is for those who need all the speed and raw computing power currently available. We picked an NEC Express system with a 66MHz Pentium processor, packed it with high-resolution graphics, top-quality add-in cards, and more-than-ample memory and storage. Then we tossed in an integrated CD-ROM drive, added it up, and gasped at the price tag. If you're doing serious 3-D modeling, heavy database work, or compiling large applications, maybe you can afford this particular fantasy. Pentium machines will start appearing at midyear and, given the history of the '486, will proliferate quickly.

The Epson Progress
system for developers a
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throughput. A fully load
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PICK AND CHOOSE

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The Epson Progression NX is our pick as a high-performance system for developers and power users. If you routinely use computer-intensive applications, compile using ProjectBuilder, or just like to have 15 applications open at once, this is the class of machine for you. While this machine has very fast graphics and fast computational speeds, an EISA machine would offer better overall throughput. A fully loaded system with 1024-by-768 Wingine graphics; good SCSI, Ethernet, and sound cards; 500MB of disk and 36MB of RAM costs a fairly reasonable $6500.

There will be many good choices at this level, as NeXT's hardware OEMs initially target the market for in-house development. Choose carefully, since subtle factors influence performance and cost may be a secondary factor here.

Once applications have been developed, most customers will be looking for a lower-cost box for widespread deployment and use of shrinkwrapped productivity applications. Data General holds down our slot for a mainstream business system with its Dasher II-486 DX2/66 LE2 EISA box with local-bus video. Even though this is a midrange NeXTSTEP machine, it is faster than the old NeXTstation Turbo Color.

Typically, midrange systems will use the same 66MHz processor as the high-end machine but include less RAM, less disk, and lower-priced components. Also, it may have a slower graphics subsystem. Another attractive choice for deployment systems is the Epson NX, a slim-line model with an IDE drive base-priced at around $4000.

Some users will want to get NeXTSTEP at the lowest-possible entry point. Our representative system, the Dell 433/L Series, equipped with minimum RAM and disk for about $2500, is appropriate as an e-mail station or clerical workstation. It has roughly the speed of a NeXTstation 25MHz machine. Since it lacks a high-performance graphics subsystem, it may be a little slow dragging around windows. This is also what a machine will be like if existing, older '486 systems are converted to NeXTSTEP.

Our full-powered portable runs on AC, so it is most appropriate for users traveling from office to office rather than actually computing in the field. This machine still has plenty of power and is excellent for financial users, like auditors. It performs somewhere between the low- and midrange machine. Beware the small amount of screen real estate, however.

Our choice in this category is the Compaq Portable '486/66. Compaq has not signed on as a full NeXT OEM, but the company has said it plans to certify the machine to run NeXTSTEP.

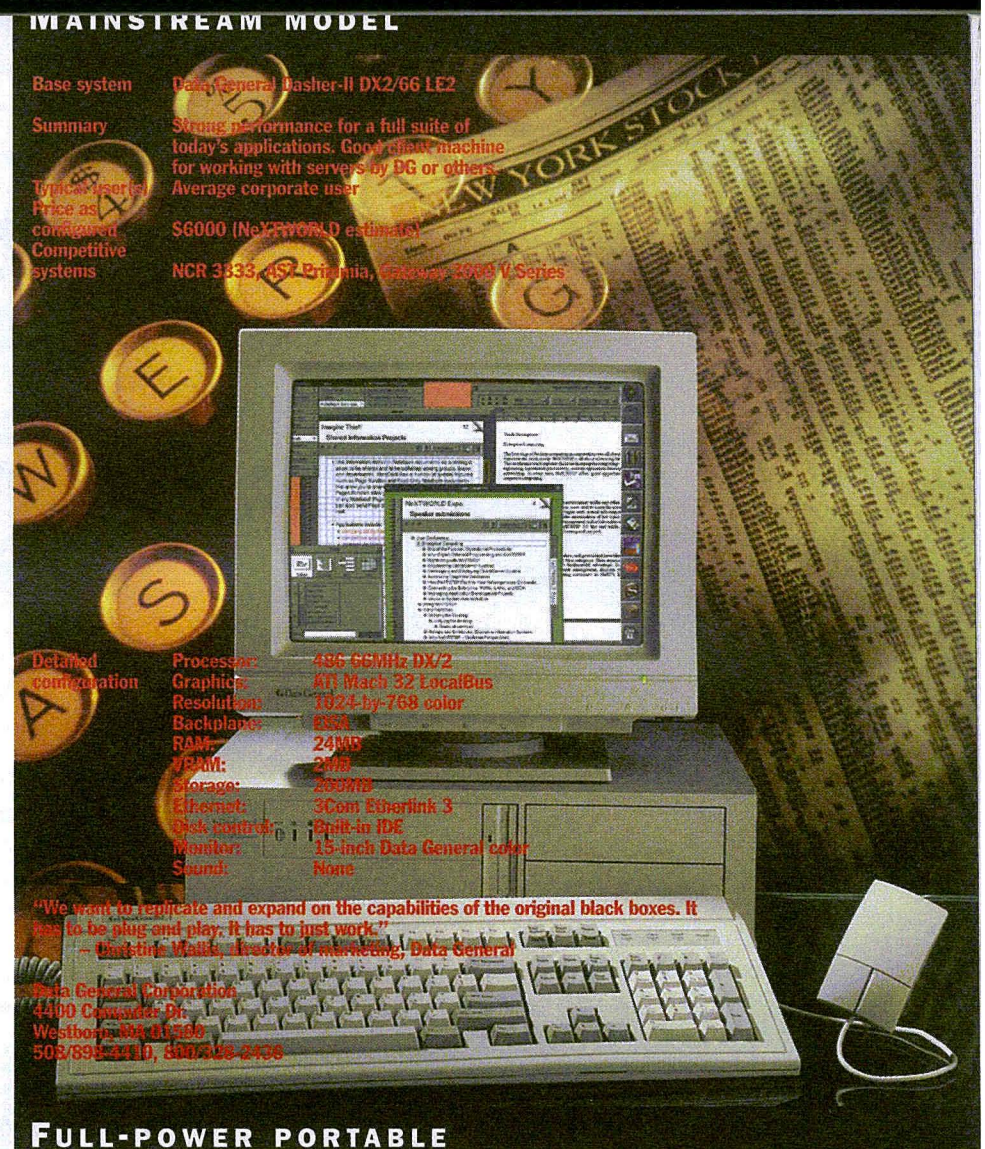
NEC's UltraLite Versa wins the early nod among NeXTSTEP notebooks. This machine is a 25MHz '486SL machine in a trim, black 6-lb. package. At 640-by-480 resolution, screen real estate on notebooks is quite limited – but who cares? Programs like Pinnacle Research's VirtSpace allow you to manage screen usage. Besides, a partial NeXTSTEP window that you can call up anywhere is better than no NeXTSTEP at all. Users who spend a lot of time traveling will need one, while most everyone else will just want one. Another good choice for NeXTSTEP-to-go is the Compaq LTE 25C, which will likely be certified by NeXT.

Pick and choose

The hardware specs may be just one factor in your choice. Pricing, of course, will vary considerably. The mass-market vendors such as Dell can be expected to set the pace, while specialized manufacturers such as Data General will emphasize value-added services. Buyers will benefit from the competitive market.

Several NeXTSTEP PC makers will promote the convenience of complete plug-and-play systems. Data General plans to configure systems to most closely match the functionality of NeXT's late hardware. That includes not just Ethernet and sound, but – soon – NeXTdimension video. "It has to be plug and play. It has to just

Mainstream model



Full-power portable



work," says Data General's Wallis.

Each of the OEMs will preload NeXTSTEP software on their systems. NEC says it will go one better by offering to install the customer's in-house software on deployment machines. End users will get a turnkey system, complete with the apps developed by their MIS department.

Finally, several companies will emphasize their comprehensive customer service and support offerings on the theory that NeXTSTEP buyers don't want just boxes but also a relationship with the vendor.

The OEMs will mostly rely on their existing channels to distribute systems. Some will emphasize dealers and VARs, others will offer the speed and convenience of catalogs and mail order, while others will count on their direct sales forces.

"We let the customer decide how he wants to buy – dealers, VARs, integrators, direct," says NEC's Middleton. "The one thing we probably won't do is manufacture in large quantities and stock the dealer channel. We'll build systems in our factory on a demand basis."

Hardware partners will also sell cooperatively with NeXT sales representatives. These calls might be initiated in some cases by NeXT and in others by the OEM. Dell's Jolly forecasts that many of the company's corporate customers will be interested in looking at NeXTSTEP, and that NeXT would be brought in as a co-presenter before these accounts.

First pitch

While the market for NeXTSTEP PCs remains unproven, few of the OEMs plan to invest heavily in advertising and other marketing. Most of them consider demand-creation to be NeXT's job; they will help to raise awareness with press and trade-show activities. Among the group, Epson and Data General seem most aggressive in their approach to the NeXT market, with planned promotions and targeted marketing.

Now that the lineup is set, it is time for the season to begin. As Steve Jobs tosses out the ceremonial first pitch on May 25, the vendors are upbeat and the customers are ready to examine their wares (see the sidebar "Customers evaluate the options"). Says Dennis Jolly: "It is very clear that NeXT is focused on a clear objective. NeXT is doing what its customers want. Whenever you do that, it's tough to lose."

DAN RUBY *and* DAN LAVIN *are, respectively, editor in chief and senior reviews editor of* NeXTWORLD.

Customers evaluate the options

NeXT customers have differing strategies for evaluating NeXTSTEP running on Intel-based hardware.

Trident Data Systems, a Los Angeles–based integrator working closely with governm clients, is "focusing on user performance" to evaluate '486 purchasing options fo customers, according to Chief Engineer Hal Stalcup. Trident is designing test su involving beta releases of NeXTSTEP application software, which will be used to e ate users as they step through typical tasks.

By quantifying these normally qualitative criteria, NeXTSTEP for Intel purcha can then choose machines based on the needed level of sophistication. "We don't w an engineer waiting an hour to launch an app or having long screen updates. On other hand, we don't need to have a secretary click a menu and – bang – it's the Stalcup says.

Seattle-based McCaw Cellular Communications, the nation's largest cellular vice provider, is looking at '486 50MHz machines from Dell, Intel, and DEC with a imum 20MB RAM and a 400MB hard disk because video will play an important ro its point-of-sale customer-service app. "The two important factors for us are video olution and internal bus speeds on video and SCSI technology," says Scott Ebner, and desktop service manager. User-acceptance testing is scheduled to take place a the hardware review.

For companies looking to put a '486 box on every user's desk, the focus is on imum-configuration needs. Chrysler Financial, which plans to put computers in dea ships around the world to handle car and truck loans, is sticking with a minimum 120 hard disk and 16MB of RAM, according to Branch Automation and Retail Systems ject Manager Mike Adelson.

In cases where multiple vendors offer similar products at similar prices, ser service and support may be the deciding factor. "Several manufacturers have been cooperative. They've offered us machines to take for test drives. They're interested our business," says George Lowrey, MIS partner at Conner & Winters, a Tulsa, Ok homa-based law firm.

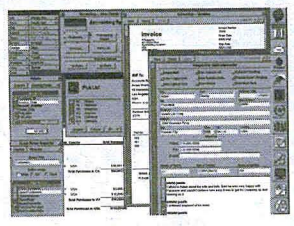
BY ELIOT BERGSON

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FOR EVALUATING NeXTSTEP

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Trident is designing test suites
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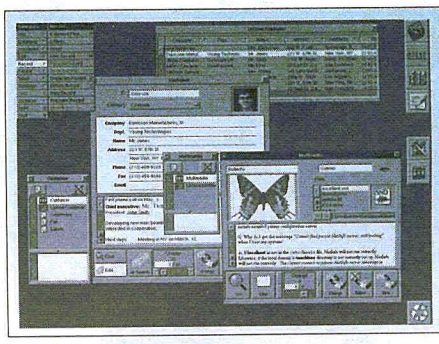
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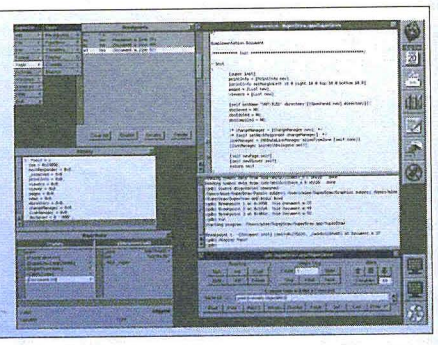
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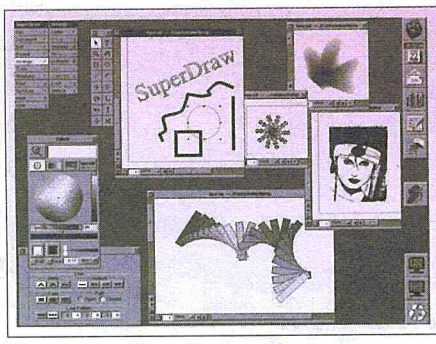
Four Applications To Boost Your Productivity...



VarioData is a powerful and flexible flatfile database capable of managing text, numbers, dates, images, sounds, files, and key words. An extensive list of tools is available for designing reports, searching for specific data records, integrating with FrameMaker, and much more. VarioData offers an import and export interface with user-definable filters and the ability to easily design and print labels, merged letters, and listings. All of these features within a friendly, graphical user interface. VarioData offers multi-user network capability, and records in use are locked and unlocked automatically. VarioData also includes an extensive context-sensitive help facility.

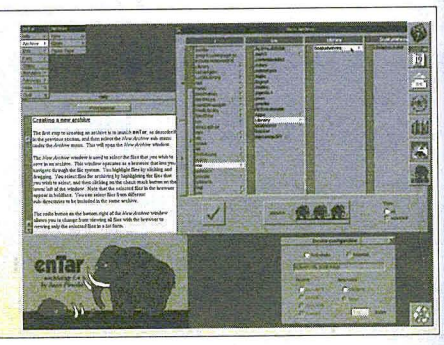
SuperDebugger can greatly reduce your application development time by providing a more powerful and easy-to-use debugging environment. It features dynamic display of source-level execution, point and click setting of breakpoints, savable debugging environments, user-definable macros, a variable contents display, a dynamic local variables browser, a methods browser, a breakpoints browser, and much more. It also gives users the ability to easily inspect and trace dynamic variables. SuperDebugger is very easy to learn, and includes an extensive context-sensitive help facility.





SuperDraw is a powerful and easy-to-use drawing and presentation program. It features tools for rotating, scaling, skewing, joining, combining, multi-level masking, and blending of graphic objects such as texts, lines, rectangles, polygons, 24-bit color, TIFF and EPS images, and Bezier splines. SuperDraw offers 6400% zoom-in capability, up to 1000 levels of undo/redo, multiple concurrent views of a multi-page document, object/sound linking, varied import/export capabilities, and much more. It also allows you to choose spot process colors from the NeXT Color Panel, then drag and drop them into objects.

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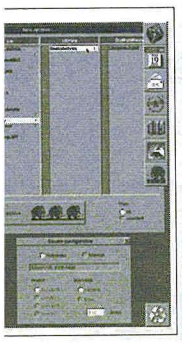
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Order in the Court

As the legal profession looks toward the 21st century, NeXTSTEP is providing an impetus for technological change

BY ELIOT BERGSON



ILLUSTRATION BY LANE SMITH

Lawyers aren't known for embracing change, but they know a good thing when they see it. Attorneys at Tulsa, Oklahoma-based Conner & Winters waited just one week after NeXT announced its new software strategy in February to end an eight-month technology review and launch a pilot program with NeXTSTEP for Intel as its computing environment.

"We wanted to move faster, but in a conservative law firm I couldn't endorse a dead-end solution. With NeXTSTEP, we've got flexibility," says a member of the firm's computer committee.

Conner & Winters isn't alone in considering or choosing NeXTSTEP for the hefty computing needs of the legal profession. Multinational and local firms have followed the lead of Portland, Oregon-based Marger, Johnson, McCollom & Stolowitz (MJMS), a patent-law firm that was the first in the country to choose NeXT, in 1990 (see "Point of Order," *NeXTWORLD*, Summer 1992). Several court cases in the past year used NeXTSTEP applications for discovery and document management. And the Florida Bar Association in January picked NeXTSTEP as the backbone of its legal-education and news system (see sidebar).

Although PCs have been in law offices for years, no operating environment has been able to provide the complete functionality lawyers require – until now. Attorneys around the world using NeXTs and NeXTSTEP for office productivity, on-line information retrieval, custom-application development, and document management and presentation are formulating a unified vision of the high-tech legal office. They are even pushing developers toward finding solutions to document-assembly and legal-modeling tasks that require applications to mimic legal reasoning.

As computer use in society, and particularly courtrooms, increases, and computer-savvy law-school graduates join firms, attorneys "will be able to off-load the mechanics of lawyering to computers and return to the meaningful aspects of the law," says Marc Lauritsen, a senior research associate for practice technology at Harvard University. "The NeXT is so exciting because it comes closes to being the definitive information appliance for the lawyer."

PAPER CHASE

When the first North Slope crude poured through the Trans-Alaska Pipeline in 1976, it brought with it an unforeseen byproduct – mountains of paper. For the next 15 years, lawyers for the state wrangled with Exxon, Arco, and British Petroleum, among others, over how royalty payments for the oil were to be determined. There were no arguments, though, about using NeXT machines to scan, organize, and display documents in court.

Applications developed under NeXTSTEP "allow high-speed processing of text. Attorneys have to take literally millions of documents and images and then index and search them. They can't do that with standard PCs," says Sam Van Vactor, president of Economic Insight, whose Insight Software division developed ElectroFile, the document-management application used to catalog the oil-pricing and royalty contracts.

The Alaska Royalty Case never made it to trial, but NeXT machines did make it into the Juneau courtroom. The state courthouse was rewired to accommodate two 37-inch Mitsubishi monitors suspended from the ceiling in front of the jury box and 20-inch monitors for the defense and prosecution teams, judge, and audience – 11 in all. A NeXTstation Turbo Color ran the system. The installation was, for a time, a tourist attraction.

ElectroFile is currently being used in the planning stages of other cases, Van Vactor says; attorneys will be able to quickly scan and index documents, perform complicated analyses, produce easily readable graphics, and refute testimony in court by accessing and displaying contradictory evidence from the database.

That database of relevant documentation can be immense: contracts, reports, analyses, forecasts, minutes, memos, agreements, depositions (which, in some class-action suits, fill boxes on truck palettes), previous litigation and decisions, state and federal rules, testimony, and statutory and case law. In cases involving issues like malpractice or securities trading, large amounts of information must also be drawn from other sources.

In a patent-infringement case brought against Seattle-based Applied Technology Labs (ATL) by SRI International of Menlo Park, California, independent consultant Jon Taenzer spent over 100 hours using Wolfram Research's Mathematica to refute an ATL claim that SRI's medical ultrasonic-imaging technology was merely an extension of work done in the 1950s and 1960s and thus couldn't be infringed upon. Taenzer prepared Mathematica screens to display at trial, but they showed ATL's infringement so clearly that the judge summarily ruled in SRI's favor.

"Document management isn't just searching for a needle in a haystack," says Gregory Miller, president of Inherent Technologies, a legal-software spin-off of MJMS. "It's searching for the right needle in the whole barn. Discovery is following a thread through a case by setting up a language for that search. Importantly, it leads us to other places."

The success of a case, or even an entire firm, can ride on how well software performs and lawyers are able to use it. For that reason, attorneys are working with not just ElectroFile, but also PaperSight from VISUS and an upcoming offering from Integrity Solutions, a spin-off of BOSS Logic. In the Alaska Royalty Case, lawyers for the oil companies were willing to use NeXTSTEP technology to gain an edge – but a backup of physical documents was prepared in the event that something went wrong.

DISCOVERY

Lawyers have always been hesitant to try anything new, including computers. Law firms, historically flush with cash, have been "taken for a ride" by the PC industry, says Inherent's Miller, as sales reps have "promised continents and delivered only an acre." Also, reliance on precedence has led to

FLORIDA STEPS UP TO THE BAR

"If you're talking communication, you might as well start with the best," says Rohan Kelley, chairman of Law/net, the Fort Lauderdale–based integrator chosen to install a NeXTSTEP-based on-line information network for the Florida Bar Association. "There is no better communication protocol."

The deal, which was approved by the technical committee of the state bar in June 1992, calls for machines running NeXTSTEP to be placed in the bar offices as part of a pilot program, along with a server in Tallahassee and one in Portland, Oregon, home of Inherent Technologies, software developer for the project. "We see Florida as a kernel that can be grafted onto other states," Kelley says. Two other states are currently studying Florida's system.

Kelley reports that the system will be a statewide electronic network for news, mail, and continuing legal-education services. Support will be provided for various UNIX formats, Macs, and PCs. Network architecture will comprise both a store-and-forward mechanism and dial-up service.

The bar also plans to electronically publish the minutes from all association and committee meetings and is exploring the possibility of allowing committees to convene and conduct business on-line. And because the monthly *Florida Bar Journal* and bimonthly *Florida Bar News* are already available on disk, they will be added to the service, allowing attorneys to integrate sections more easily into their firms' document databases.

The state's civil and criminal codes are also now available in electronic form, Kelley says, so adding the statutes to the network should be as easy as addint the *Journal* and *News*. Eventually, all state bar publications will come on-line, including current hardcover-only releases in various substantive areas of the law, as well as civil, probate, and appellate rules and decisions.

The state bar also plans to add attorney-certification information to the system. Lawyers in Florida sit for written and peer-review examinations that, when completed, allow them to be "board-certified" experts in various legal specialties. Attorneys searching for an expert in civil trial practice or probate could quickly find partners for litigation outside their own areas of specialty.

"All this seems like a dream, but the pieces are in place to make it a practical reality," Kelley says.

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a "cattle logic," by which a firm lets others set precedents while it remains a strong follower. This grows out of a fear of predictability; lawyers can replace personnel who don't work out "but can't say to a computer: 'Pack up your chips and be out by lunch,' " Miller says.

The biggest variable, though, is the simple fact of age: Most attorneys practicing today never learned about computers in law school. But "the reticence is disappearing," says Harvard's Lauritsen, whose law school has two NeXTs in its hardware mix. "Students are computer literate now; they graduate with expectations of using them in their practice. There's a decent amount of CALI (computer-assisted legal instruction) and courseware being developed. The mother of all casebooks is now portable."

Rather than wait for computers to be embraced by the mainstream legal market, NeXT has been able to make inroads at firms that specialize in technology and intellectual-property law. At MJMS, all eight attorneys hold engineering degrees in addition to law degrees; they were eager to use Lighthouse Design's Diagram! and Concurrence, and Adobe Illustrator, to draft intricate patent applications and save money on outside drafting. In addition, they use NeXTmail to transfer documents and memos, even between their homes – which are also equipped with NeXTs. The firm is currently considering adding Intel-based laptop portability to its arsenal.

Lawyers in the intellectual properties group of Reed, Smith, Shaw & McClay, the largest law firm in Pittsburgh, have begun a pilot project with 22 NeXTstations to replace a dumb-terminal system. The group has also gotten support personnel quickly up to speed on scanning, graphics, faxing, and word-processing tasks, according to Tom Wettach, head of the group. Wettach says Reed, Smith hopes to expand the expertise to clients, which include HBO, MCI, and the Mellon Bank, by placing machines running NeXTSTEP directly in their offices.

Smaller firms have found that little touches available under NeXTSTEP can make for big productivity improvements. At Beckman, Hirsch, and Ell, in Burlington, Iowa, two NeXTstations organized as an on-line file room via NeXTSTEP's hierarchical browser allow lawyers to "get to facts quickly rather than fumbling with paper," according to David Beckman. Client names on a NeXTmail window's subject line feed into the system, and envelopes are printed out through WordPerfect macros and Sarrus Software's SBook.

Attorneys argue that smaller firms will benefit greatly from the ability to design systems under NeXTSTEP for Intel on commodity-priced PCs.

But NeXTSTEP's successes underscore a weakness: Developers are only just beginning to deliver custom and legal-specific shrinkwrapped applications. "The predominant use of computers is for word processing, mail, on-line research. It's popular, nonthreatening. New things that raise trickier questions are the substantive systems: document assembly, expert systems, and decision support," says Professor Lauritsen.

MISSING EVIDENCE

Now that document management and system capabilities allow lawyers to manage huge amounts of information, attorneys are looking for fast and efficient ways to do on-line research. In 1991, Scott Hess, an independent NeXTSTEP programmer, developed a custom app for Northern States Power attorneys to dial into Lexis/Nexis, the one-terabyte-plus electronic database of court decisions, regulations, and news published by Mead Data Central. Once information is downloaded, lawyers at the Minneapolis-based utility perform searches using Digital Librarian.

This is a big jump from what David Beckman has to do – read Iowa State Supreme Court decisions off CD-ROMs – but a more powerful front end to Lexis is currently available. Inherent's shrinkwrapped Lenex product offers multilevel security, automatic phone updates, NeXTSTEP system capabilities such as color support and drag and drop, and modem administration, according to the company. Inherent plans interfaces for WestLaw and Dialog, competitors to Lexis.

NeXTSTEP technology has also made inroads into larger legal networks. The American Bar Association now sports a growing UNIX newsgroup in its technology subsection. A NeXTSTEP-specific legal news group, called JuriNUG, has been on-line since December and counts several dozen professionals and academics among it's subscribers. And in addition to being tapped by the Florida Bar Association, NeXTSTEP is under consideration by two other states' bar associations.

Accessing information databases and coordinating documents at trial give lawyers advantages but not the power tools they really need. According to David Warner, professor at the Pettit College of Law at Ohio Northern University, "We need to turn the computer into an extension of what we see now as computers presenting information in the courtroom."

Attempts to fill this void under NeXTSTEP have fostered the first legal client-server database applications to help firms keep track of filing deadlines, docketing, scheduling, and time and billing. "The time and billing function is so critical for our survival that we won't experiment. It has to be solid," says MJMS partner Micah Stolowitz.

Integrity Solutions is finishing up a case-management system, according to company President Dan McCreary, that uses a Sybase database and integrates Integrity's own FrontDesk messaging system. The firm already has experience providing custom solutions for USWest's corporate legal office in Denver. Intelidoc, a docketing application from Inherent Technologies, will employ relational-technology tools from Parabase Software's Para-base product. It will also drive Sarrus Software's Pencil Me In and tie together all messaging and calendaring functions. Vermont-based Labyrinth Systems is currently developing a docketing system for Reed, Smith.

The real test of NeXTSTEP's development capabilities, though, will come in the area of document assembly, which has to mirror so closely a working lawyer's reasoning process. "Document-assembly tools are lacking under NeXTSTEP," says Robert Hartley, a partner at Martin, Wade, Hartely, and Hollingsworth, in Indianapolis. In drawing up a will, for example, a lawyer might have to establish different types of accounts or trust funds for various forms of stock. As the lawyer chooses one type of account or stock, the software should enable him to automatically assemble sections of the will relevant to those choices.

Hartley argues that with these applications, all the legal expertise in a document could be "built in." Both Integrity Solutions and Inherent Technologies plan to release object kits based on their legal-software development. Still, Professor Warner warns that "we can emulate legal reasoning, but I doubt we will actually fully achieve it. To learn things about problem solving from the attempt, though, is realistic."

FINAL ARGUMENTS

Robert Hartley's vision may signal a genuine understanding of NeXTSTEP's capabilities. Surely, lawyers use NeXTSTEP more fully than professionals in other fields – affording NeXT and third-party developers the almost limitless opportunity to provide ground-breaking tools. But this could prove a daunting task: As lawyers continue to move slowly through the evidence of different software offerings, developers will lack the incentive to bring products to a market that is only slowly emerging.

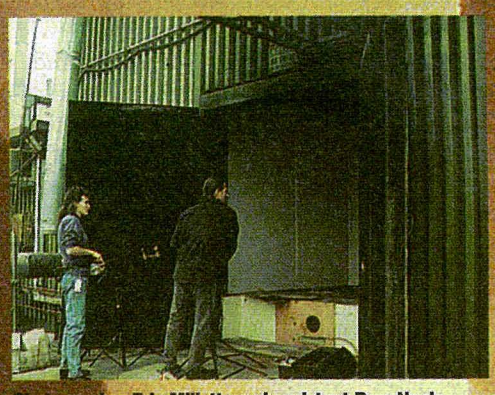
For NeXTSTEP software developers who have begun to understand the needs behind legal reasoning, though, enthusiasm currently breeds success – steady success that avoids the booms and busts seen in development for other vertical markets. Referring to the eventual use of NeXTSTEP applications in courtrooms for document display and crime and accident re-enactments, Sam Van Vactor explains that "lawyers know that if one side uses NeXTSTEP technology and wins a case, the other side will use it the next time. You just have to take one case at a time."

ELIOT BERGSON *is associate editor of* NeXTWORLD. *He can be reached at birdsong@nextworld.com.*

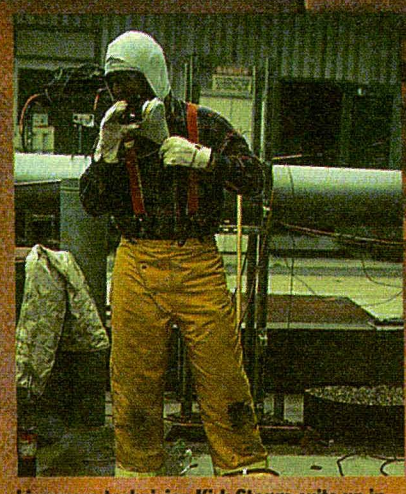
Pyromania!

Date: Wed, 24 Mar 93 19:11:05 -0500
From: simsong@next.cambridge.ma.us (Simson L. Garfinkel)
To: druby@nextworld.com (Dan Ruby)
Subject: Chemistry experiment

When you do your next equipment inventory, you will discover that the NeXTcube with serial number AA001032 is missing. Here's why.



Photographer Eric Millette and assistant Pam Nagle scope out the bum cell at Site 300.



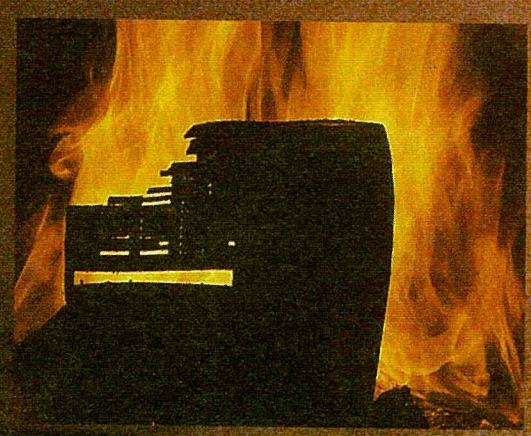
Livermore technician Kirk Staggs suits up in fireproof pants, coat, helmet, and respirator.

PHOTOGRAPHY BY ERIC MILLETTE AN

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...of natural gas succeed in melting the ... ignite the magnesium alloy.



With the first Cube reduced to white-hot slag, the second Cube smokes and burns.



End of chemistry experiment. Simson hasn't had so much fun since high school.

PHOTOGRAPHY BY ERIC MILLETTE AND SIMSON L. GARFINKEL

As you know, when NeXT first contemplated making computers, Steve Jobs decided the machines should be built from cast magnesium, relatively expensive but strong and lightweight. I was attracted to the Cube case for a different reason: Magnesium burns with a brilliant white flame. When I was in high school, I used to steal it from the chemistry lab and set it on fire in my backyard.

In 1991, while interviewing Rich Page, NeXT's then vice-president for hardware, I inquired about getting an empty chassis to burn, and he obliged. But it wasn't until the day NeXT formally quit hardware that the circumstances were right. The only problem was where to have the fire. Although magnesium smoke is nontoxic, it could attract the attention of police or the fire department. And it turns out I would have had to face a hearing with the Bay Area Air Quality Management District to get a waiver from emission regulations.

I was ready to drive out to the desert and just set off the Cube with a torch when I remembered Lawrence Livermore Laboratory, a weapons facility about 20 miles outside San Francisco that is owned by the Department of Energy and run by the University of California at Berkeley. Yes, they were glad to help – once we got them our social-security numbers and some safety data on the paint. (It took days of calls all around the country to identify "Sprayon Paint, Omni-Packblend, 4Next-Black (icon black), LAV-16, 25216" as water based.)

The morning of the shoot, we were guided through the enormous facility to a burn cell at Livermore's Site 300: a 20-by-30-foot brick-and-steel box equipped with a sophisticated ventilation system and two large metal doors. Next to the cell were two sheds that the Fire Science Group uses to simulate the inside of a nuclear reactor. A man named Harry Hasegawa and a crew of professional pyros were on hand to meet us. One of them suited up with fireproof pants, coat, and helmet, squeezed into a respirator, climbed into the burn cell, and lit up a small slice of magnesium with a MAP gas torch.

There was a distinctive orange glow from the bar's center, then sparks, a steady white flame, and white, cakey ash: magnesium oxide, the same ingredient in Milk of Magnesia. Beautiful. Just what we were hoping for. This was pure magnesium, though, and the Cube, according to NeXT, is a "magnesium alloy specially designed to be difficult to ignite." So we'd need another test: We took off the 14-inch-square, one-half-inch-thick rear panel of the Cube, positioned it in the burn unit, and hit it with the torch. As it heated up, the metal started to melt. A flame sputtered for a few seconds, then went out. Someone wheeled out an oxygen-acetylene torch, but the results were the same.

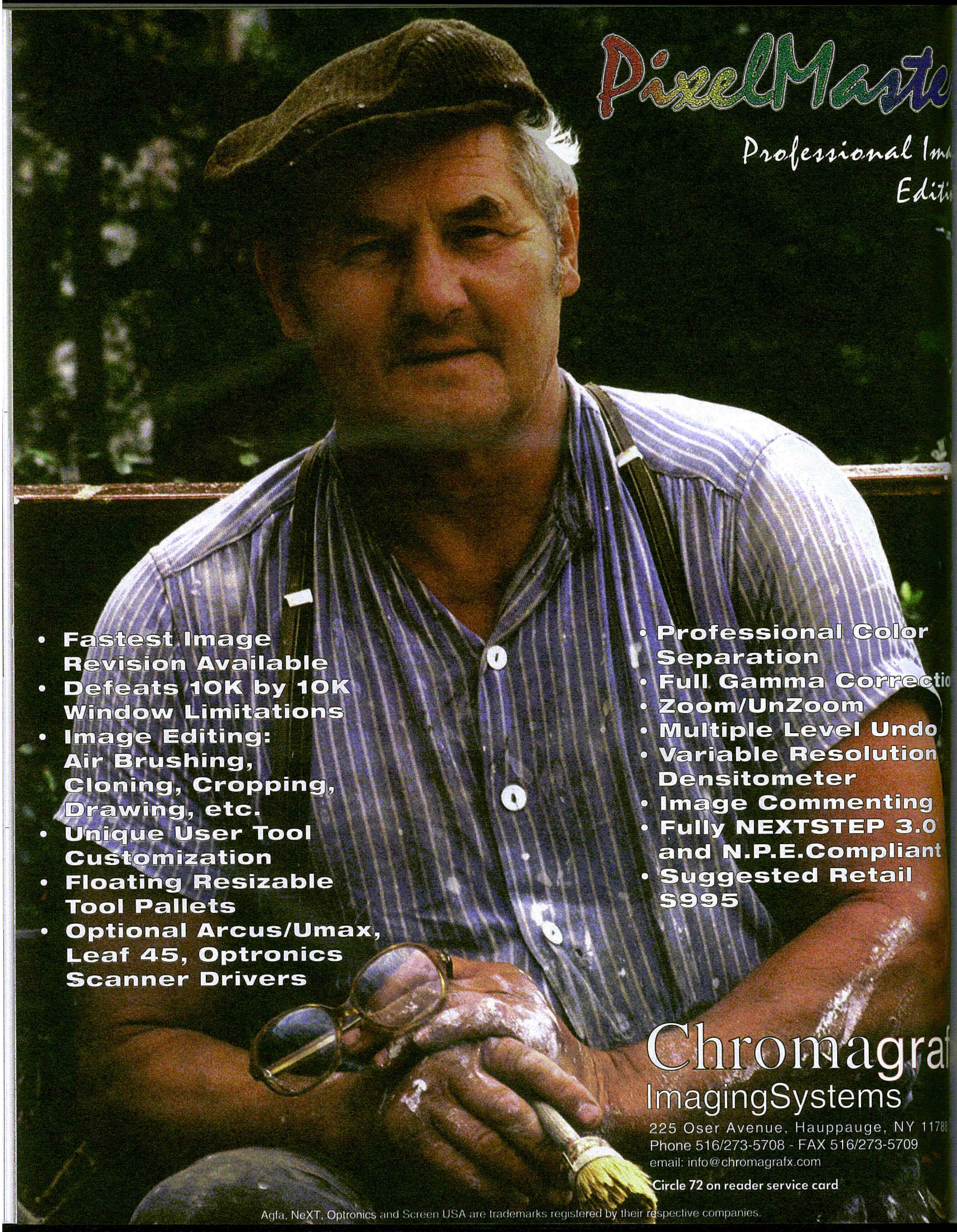
So a torch would obviously not be enough. The Livermore staff put a big, round natural-gas burner in the cell and placed the Cube on top. The gas flames encircled the box and leapt into the air, but as it heated up, the top started to sag, and one of the sides peeled back – more a meltdown than a fire. A few minutes later, the thing was reduced to a smoldering pile of slag magnesium, with pock marks of white ash, charred black metal, and the occasional spark.

Then it happened. A few sparks flared and didn't go out. White smoke billowed from the computer. And the slag pile burst into a blinding white flame. The magnesium had been liberated from its mysterious alloy.

That's when I decided to go beyond the agreed plan. You didn't know it, but I'd taken along the case from one of our decommissioned office Cubes. Surely this magnesium fire would be enough to start the other one burning. We tossed it on and reloaded our cameras.

Ignition was almost instantaneous. The intense heat from the pool of burning magnesium set the second Cube's sides smoking, then burning. The white light showed touches of green. The Cube's top sagged a bit, then smoked, then started to burn. This time, the engulfed object was clearly a NeXT computer – a triumphant expression of the power of NeXT technology to set the world afire.

I know you will never agree to run these photographs, but I thought you should know why we're one chassis short around the office.



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Standardize Licensing

SIMSON L. GARFINKEL

There's not much advantage to object-oriented programming if everybody has to recreate the same objects – yet that's just what most NeXTSTEP developers have been forced to do for registration and licensing their software.

Copy protection is one of the oldest bugaboos of the software industry. Make your programs too easy to steal, and users will do just that: Look at what happened to Lotus Improv. On the other hand, make your program difficult to install, make it require a special key disk, or customize it so that it only runs on a particular CPU, and you'll anger customers.

Copy protection is largely a thing of the past in the PC world. Most PC software these days isn't protected, it's personalized: You can make as many copies of a program as you want, but they all have your name on them. Only a few high-end software packages still require dongles – little boxes that clamp onto a computer's printer port – to be in place for the software to run.

In the NeXT world, developers adopted a different strategy. Most NeXTSTEP software runs in demo mode until it is registered. As a demo, the program might do everything except save files, or not operate with databases that contain more than 25 records. But call up the developers, give them your credit-card number and type in a key, and your program will become enabled with all of its features.

Demo mode is a powerful idea. It lets NeXTSTEP developers put full copies of their programs on low-cost CD-ROM samplers or make them available for free over the Internet via anonymous **ftp**. Users can try before they buy and have instant availability upon purchase. Demo mode all but eliminates the cost of distributing updates. The demo-mode idea may be one of the great unrealized advantages of NeXTSTEP for third-party developers. Not surprisingly, neither the DOS nor the Macintosh worlds have anything like it.

What's missing is consistency. Nearly every major NeXTSTEP developer has also developed its own software-licensing system. That's because NeXTSTEP has no built-in system for software licensing.

To write their own licensing systems, every NeXTSTEP developer must become an expert in encryption, copy protection, and networking. They have to spend time designing systems that work well for single users, small networks, and large organizations. They have to think of all the ways that something could go wrong. More than half the problems that I've seen trying to get third-party programs to work on NeXT machines have to do with the intricacies of registration coding.

In an attempt last year to solve this problem, I wrote my own licensing system and made it available on the Internet. I withdrew the package two weeks later after being inundated by telephone calls for technical support. It was the wrong solution: This is a job for NeXT.

NeXT could solve the licensing problem once and for all by developing its own application-licensing system, making the objects available to developers free of charge, and then bundling the manager into NeXTSTEP 4.0. Using public-key cryptography, NeXT could virtually assure that one company couldn't issue keys for another's software and eliminate the chance of piracy by some smart college student with a disassembler. By integrating the floating license manager with the NetInfo server, NeXT can make the system work equally well in networks of five machines or 5000.

After all, isn't that the point of an object-oriented operating system?

SIMSON L. GARFINKEL, NeXTWORLD *senior technology editor, is coauthor of* NeXTSTEP Programming *(Springer-Verlag, 1992).*

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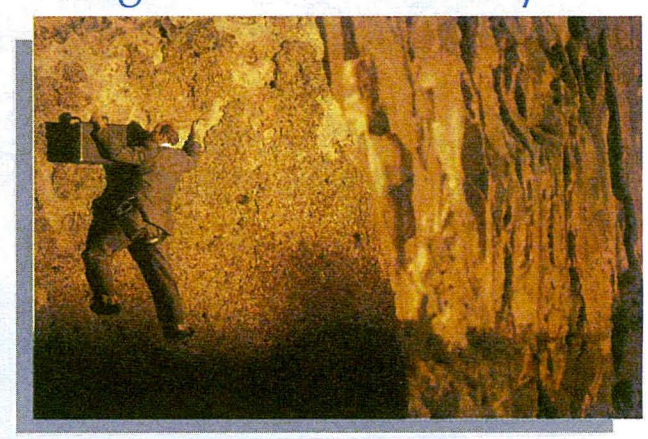
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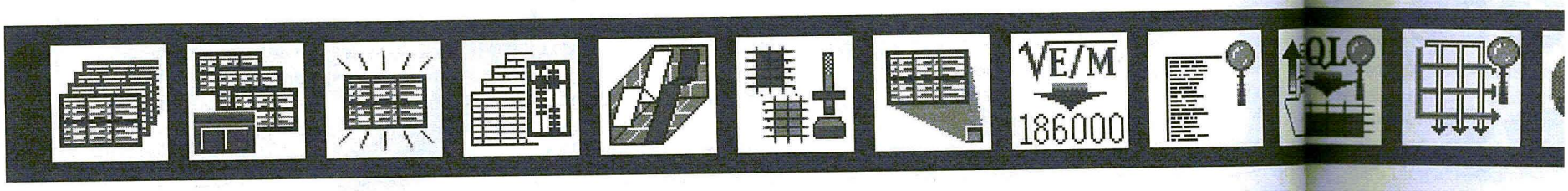
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"Mesa goes beyond and above the call of duty for a third party app and enables the end user to expand upon and utilize provided functionality in ways other NeXTSTEP apps only hint at. All this and the most excellent support I have ever encountered," said Vince Jordan, Vice President of Technology for the Object Technology Group of Systemhouse. • Formula Inheritance - allows a formula to be entered in one place in the worksheet and shared by many cells. This means that worksheets are faster to develop and easier to maintain. • **16384 X 16384 CELL WORKSHEETS** • @PROD() • ***Ned Farrington of Kapiti Inc. said, "Mesa is the only commercial product that can do continuous market updates."*** • Visual Report Builder - allows spreadsheet ranges and graphs to be placed in professional-looking reports. • DIDCHANGE • ***Ricardo Parada, Pencom: "The app looks great. At first I was just curious about it and I was not expecting so much attention — I [even got a User's Guide and]. . .will highly recommend it."*** • MOLI - Mesa Object Library Interface - allows custom programs to interface with spreadsheets via Object Orient methods. MOLI enhances the creative capabilities of Mesa and comes free with each copy of Mesa. • **UNLIMITED COLOR AND TEXT CHOICES IN EACH CELL** • DATEVALUE() • ***"Finally, a spreadsheet for NeXTSTEP that is really intuitive. Mesa is a truly sensational product that works well with DataPhile to manage your information needs." said Andrew Stone of Stone Design.*** • New non-stick surface and flame resistant outer coating. • **DRAG & DROP COLOR, FONT AND PATTERN SELECTION** • GETINPUT() • ***"We see Mesa as a 'best of breed' application for the NeXTSTEP — responsive to end users needs and a valuable tool for developers. Our custom training programs are a reflection of ITS confidence in MESA." Edward 'Ted' Shelton, President, Information Technology Solutions, Inc.*** • Worksheets can be annotated with geometric shapes and rich text. • **ON-SHEET DATA ENTRY** • @CLEAN() • ***"If you know either Lotus or Excel, you shouldn't even have to open Mesa's manual." John Perry Barlow, NeXTWORLD Magazine.*** • Complete with unlimited phone and e-mail technical support. • **DATA ENTRY RANGES WITH DATA VALIDATION** • @HLOOKUP() • ***"Mesa is one of the fastest recalculating spreadsheets I have ever used," Bruce Henderson, Pages Software Inc., Co-Author Appsoft Solution.*** • Sizable, layerable graphs in 14 varieties with hundreds of options and 4 rotatable 3D graph types.

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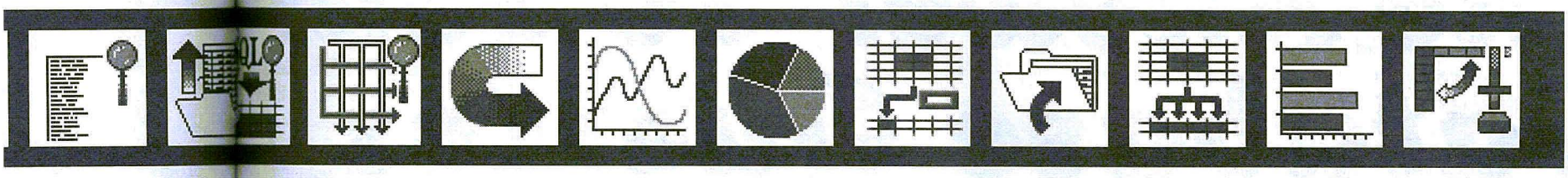
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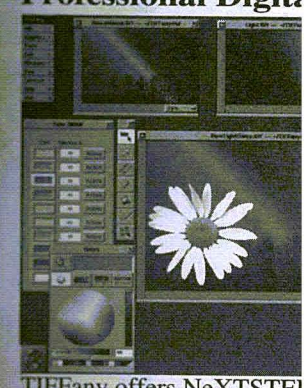
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Partner Wanted

DAN LAVIN

Where was NeXT? Here were six of the major players in the UNIX marketplace joining together in an initiative to put a common interface across UNIX platforms, along with some commonality in graphics, multimedia, object technology, and system administration. But NeXT was nowhere to be seen at the March announcement of the Common Open Software Environment (COSE).

On first glance, it appeared to be a monumental missed opportunity. With Hewlett-Packard, Sun, and Novell, among others, joined in this alliance, what would that mean for NeXT's chances to form individual partnerships with these companies?

Answer: very little. For now, COSE is only a framework for a unified solution, not a finished spec. With the right deals and partnerships, there is also no reason that NeXT technology cannot be incorporated later under the COSE umbrella.

To play a role today, NeXT would have to be ready to break up NeXTSTEP into its component parts. COSE is certainly not going to endorse NeXTSTEP in toto, but it might well be interested in various pieces of it. But having just undergone a massive change by eliminating its hardware, NeXT was not yet prepared to break up its software.

I believe that NeXT has to do just that, and that it will soon come to that conclusion. Most potential customers don't care about NeXTSTEP the complete operating system. They care about NeXTSTEP the user interface; NeXTSTEP the development environment; NeXTSTEP the sysadmin solution. The kernel, Mach, has become an irrelevant advantage as it gains wider acceptance in other operating environments. And the power of machines has made the cleverness of kernels much less an issue.

So instead of turning NeXTSTEP into an operating system that runs on many hardware platforms, NeXT must go beyond that and become an environment that runs on top of many operating systems. To make that happen, it needs alliances.

The COSE partners also have a lot to gain by incorporating pieces of NeXTSTEP. The alliance is moving towards a unified solution based on Motif, an old war-horse that has been yawned off by business users. Portions of NeXTSTEP could make UNIX easier to sell to Corporate America.

How could the process play out so that NeXTSTEP gets the chance? NeXT must form a strategic alliance with the one COSE partner that really matters, Novell.

NeXT and Novell are natural partners. Novell owns UNIX and has the muscle to market in Microsoft's face. NeXT has the user interface and development environment.

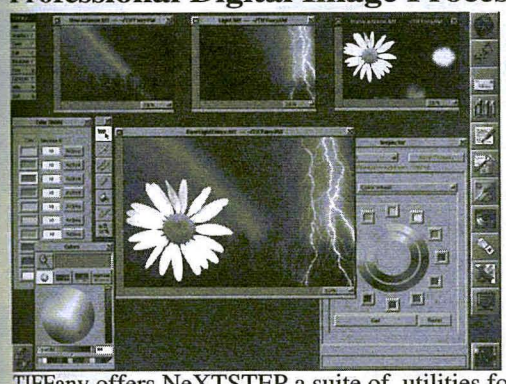
Melded together, Novell's kernel and NeXT's environment and object technology would present a real alternative to Windows NT. Without the need to pay UNIX licensing fees to Novell, this new form of NeXTSTEP could be priced very aggressively. Novell would then be able to include some of NeXT's technology in the COSE solution. For the first time, NeXT would have an important role to play in the battle for corporate computing standards.

For this to happen, NeXT must conclude its transition from hardware to software and begin a second transformation by unbundling the NeXTSTEP environment from the operating system. This is laden with financial and psychological implications, but I believe NeXT will make it work.

It doesn't matter that NeXT wasn't there at the announcement of COSE. What matters is whether it will be there at the finish line.

DAN LAVIN *comments on business issues in NeXT Ink.*

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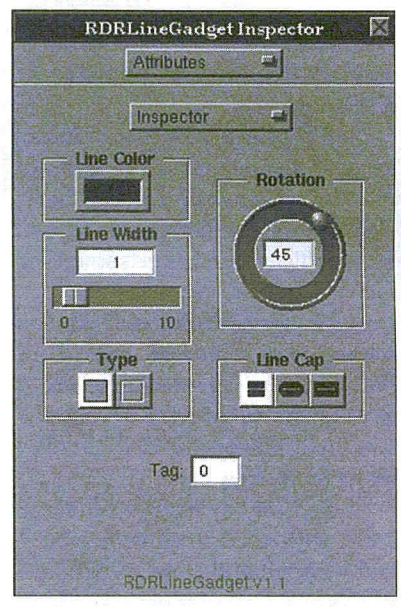
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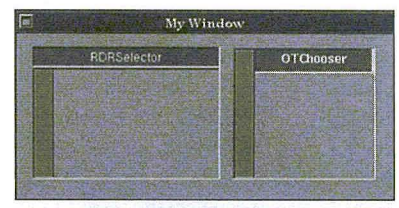
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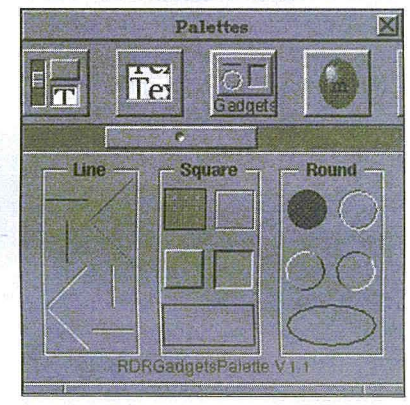
A new class of software comes of age

by SIMSON L. GARFINKEL









Clockwise from top left: Hot Technologies' bar codes can be used by other NeXT programs; single window mixes browser objects from OTChooser and RDRSelector; the RDR Palettes panel is a menu of shapes for your program; each object provides inspector panels that load automatically into InterfaceBuilder.

Objects are the key to developing applications that run under NeXTSTEP. NeXT's own Application Kit is a collection of more than 100 objects specifically designed for writing programs with graphical user interfaces; the AppKit is the main reason that it is so much faster to develop programs for NeXTSTEP than for systems such as Microsoft Windows or X Windows. The AppKit provides window, text-editor, and button objects, and since they're all written in Objective-C, they can be modified or enhanced by subclassing.

Most NeXTSTEP developers divide their days between developing new objects, writing them up with InterfaceBuilder, and testing their code with the debugger. Using objects in the AppKit short-circuits the process, since they are already designed, written, and debugged.

Buying objects from third-party vendors is a way to speed the development process even further. That's because there are many features that NeXTSTEP either lacks or has only partially developed.

OBJECT LINGO

Emphasis on NeXTSTEP's custom-programming capabilities has brought the entire lingo of object-oriented programming into general use.

An **object** is a piece of a program that can store information, display itself on the computer's screen, and exchange messages with other objects.

A **palette** is a collection of objects that can be loaded into the NeXTSTEP InterfaceBuilder program. Copies of the objects can then be dragged off the palette and into a program under development.

A **kit** is a collection of objects that are logically grouped together, such as NeXTSTEP's DBKit, for accessing databases, or the 3DKit, for developing computer animations.

Although having objects on a palette can make them easier to use, it is more important to the developer that objects be reliable, well-documented, and reasonably efficient.

Over the past few years, dozens of independent software vendors have taken aim at these holes and introduced their own objects for sale.

For the programmer, there is little difference between a third-party object and one provided by NeXT. Many third-party objects come on palettes that can be loaded into InterfaceBuilder and used just like NeXT's own switches and buttons. The better objects come with sample programs and documentation ready to load into Digital Librarian, just like those provided by NeXT.

Third-party objects require a little more thought for the legal department: Different objects are sold under different license agreements.

Commercial third-party objects have to do more than simply work: They need to be tested in a wide variety of circumstances, have provisions that allow use in ways unanticipated by the developer, have technical support available, and be well documented.

In the past year, several companies have emerged as active players in the ObjectWare field. In this article, we review the offerings from two of the leaders, Objective Technologies and RDR. We also look at the object offerings from two smaller companies, which we feel are representative of a larger group: one- or two-person shops selling unique objects to a small customer base.

We evaluated third-party objects using four criteria: scope and usefulness, documentation, technical support provided by the company, and price.

Follow the leader

Objective Technologies (OTI) has been selling objects to NeXT's customers longer than anyone else in the business. The company's palettes are collections of objects that OTI created specifically to help its customers write mission-critical custom applications.

OTI's palettes come with a surprising amount of high-quality online documentation, including class descriptions that are formatted to look just like those provided by NeXT, tutorials, and numerous example programs.

ChooserPalette is a simple tool for building selection lists (similar to the list that NeXT's Mail application uses to display the contents of your mailbox). It contains one object – OTChooser – that displays selectable cells with attractive borders and icons. It can also display a title and the tag of each cell, and let you reorder the cells in the matrix by Control-clicking the entries.

OTChooser is remarkably similar to NeXT's developer example ScrollDoodScroll, which is included for free with the NeXTSTEP Developer's Edition. We didn't find OTChooser very compelling.

SmartfieldPalette is a NeXTSTEP TextField on steroids. The palette provides a powerful solution to the age-old problem of verifying user input in forms-driven applications. You can program a field with Smartfield to accept only numbers, letters, dates, or whatever. You can restrict input to a certain range of values, have the field automatically convert lowercase input to uppercase or vice versa, and validate the user's input in a dizzying number of different ways. If the user's input is invalid, you can program the field to flash, play a sound, or display a pop-up window. If you don't like the field's behavior, you can change it by subclassing OTI's OTParser class or by creating your own parser delegate. Indeed, there is so much power in OTI's Smartfield that it requires 11 different attributes inspectors to manipulate all of its internal states.

We like SmartfieldPalette a lot: It gives the developer a powerful and flexible way for adding data validation to a program without having to write a line of code.

GraphPalette is a powerful collection of objects for graphing almost any kind of data. Without having to write a single line of code, you can build an application to graph, for example, the price of two stocks over a six-month period. GraphPalette automatically scales itself, draws labels and axes, and attractively displays your data as a bar, grid, high-low, line, or scatter plot. Special methods exist for displaying information from real-time data feeds.

Having spent days writing my own graphing routines, I was impressed by the quality and range of graphs. The inclusion of 3-D and pie-chart graph types would make this a perfect palette.

We were impressed by OTI's

high level of technical support for its products, and all of its palettes installed perfectly. The objects all contain code for OTI's floating license manager, although the code runs only when the objects are run from within InterfaceBuilder. There are no run-time fees for either custom applications or bundling OTI's objects into a commercial product. In many ways, OTI has set the standard for third-party objects.

Visual objects

RDR is the other leader in the NeXTSTEP object world. Unlike OTI, RDR's object offerings were not the outgrowth of consulting but were designed from the ground up as palettes-for-sale.

In general, RDR's objects are less ambitious than OTI's. Instead of offering fundamentally new functionality, they provide the developer with simple tools for sprucing up NeXTSTEP interfaces. While these might be time-savers, none of these objects encompasses functions that any competent programmer couldn't write.

RDRGadgets is a palette of lines, squares, and ellipses for making your user interface more visually interesting. Other than displaying themselves, they serve no useful purpose in your application. You can change the gadgets' rotation, line width, color, or shading, either with the Gadgets Inspector or programmatically. RDRGadgets is a little like having a drawing program built into InterfaceBuilder.

RDRImageView is an object that displays an EPS or TIFF file in a rectangle on the screen. Unlike NeXTSTEP's DBImageView, RDRImageView allows you to set an image to be displayed from within InterfaceBuilder, change the scaling, and resize the image to its natural proportions.

RDRImageView would be more interesting if it offered more than three simple ways (copy, SOVER, and dissolve) to change from one image to another. As things stand, the real purpose of RDRImageView, like RDRGadgets, appears to be aesthetic rather than functional.

RDRSelector is similar to OTI's OTChooser but offers a few more features and looks better on-screen. RDRSelector allows the developer to load strings directly from InterfaceBuilder, change the alignment and placement of the title, and specify whether users can move cells with a click, Control-click, or other combination of modifiers.

We think that RDRSelector's control over title placement, superior facilities for loading of data, and richer set of methods make it a clear favorite.

RDR's installation procedures need some work. By default, the RDR objects install themselves in **/LocalLibrary** rather than in **/LocalLibrary/Palettes/RDR** or something similarly logical. We liked the fact that the palettes contained no licensing code: RDR relies instead on the honor of its developers to purchase a copy of the palettes for every two programmers hired. There are no run-time fees.

Like OTI's, RDR's objects come with good documentation and serviceable example programs. RDR's technical support is good, although its support engineers were not as readily available as OTI's.

Special purpose

Besides dedicated ObjectWare companies, NeXTSTEP objects are also offered by companies and individuals selling one-of-a-kind objects to developers who have specific needs. The two objects reviewed below are representative of many special-purpose objects. Like custom-written applications as opposed to shrinkwrapped software, they are a little rough around the edges, do not have professional packaging, and have minimal documentation.

BarCodeKit is a library of NeXTSTEP View subclasses for generating bar codes. Using this kit, you can have your application program generate more than 30 different kinds of bar codes – anything from POSTNET and FIM codes for envelopes to ISBN bar codes for books and UPC codes for small packages sold in grocery stores.

Developers who need to generate bar codes will find it much cheaper to purchase BarCodeKit rather than develop their own equivalent.

We had minor installation problems with BarCodeKit that Hot Technologies claims to have now fixed. Compared with both OTI and RDR, Hot Technologies' documentation was minimal. The objects weren't on a palette and didn't respond to NeXTSTEP's **action:sender** messages. But all of these are minor criticisms. If you need bar codes, it's easier to buy these objects than to write and debug your own.

Hot Technologies was the only company in this review that had special licensing arrangements for commercial use of its objects. If you want to put a bar code into an application for resale, Hot Technologies will charge you $5000 up front, plus a small percentage for each application program shipped. I believe that licensing arrangements such as these greatly limit the use of objects by third-party developers and diminish the promise of objects as a whole.

PhoneTones is a NeXTSTEP class from KCW Consulting that generates DTMF touch tones when you press the keypad. PhoneTones lets you dial a telephone by holding the receiver up to your NeXT Mega-Pixel Display. Under NeXTSTEP for Intel, you will need a high-quality sound board and speaker for PhoneTones to work.

Like many objects in NeXT's original ObjectWare catalog, PhoneTones is sold on an as-is basis, with no pretext of support or upgrades. Since PhoneTones comes with source, and it works, I found that I didn't need anything in the way of technical support to integrate it with my own applications.

Promising start

Buying a third-party object entails cost and risk. If the object vendor doesn't supply you with the object source code (and few do), buying an object means trusting the company to provide bug fixes, technical support, and improvements that you might need.

For some objects, like OTI's Smartfield and Hot Technologies' BarCodeKit, the risk is well worth the time saved in trying to develop these objects from scratch. Other objects, like RDRSelector, will save time at companies trying to get up to speed quickly with NeXTSTEP.

ObjectWare seems off to a promising start. We believe that realizing its promise will depend upon consistently low prices, high quality, and uniform licensing arrangements.

SIMSON L. GARFINKEL is NeXTWORLD *senior technology editor.*

ObjectWare		
ChooserPalette 3.0	**$249**	*Objective Technologies, 7 Dey St. #1502, New York, NY 10007. 212/227-6767.*
GraphPalette 3.0	**$999**	
SmartfieldPalette 3.0	**$499**	
RDRGadgets 1.2	**$129**	*RDR, 10600 Arrowhead Dr. #350, Fairfax, VA 22030. 703/591-8713; or e-mail support@rdr.com.*
RDRImageView 1.2	**$139**	
RDRSelector 1.2	**$199**	
RDRSwitchView 1.2	**$149**	
BarCodeKit 1	**$795 (basic library) $1495 (comprehensive library)**	*Hot Technologies, 75 Cambridge Pkwy., Ste. E-[illegible] Cambridge, MA 02142-1238. 617/252-0088; or e-mail: Robert_La_Ferla@hot.com.*
PhoneTones 1.1	**$50 for source code**	*KCW Consulting, 3126 Windwood Farms Dr., Oakton, VA 22124. 703/938-4152; or e-mail: curt@kcwc.com.*

Freed[illegible] Choic[illegible]

With design s[illegible] creates stylish

by LEE SHERMA[illegible]

Desktop publishi[illegible] proven to be a [illegible] ing tool for pro[illegible] designers. For [illegible] users, however, [illegible] ingly complicated DTP so[illegible] has meant wasting time w[illegible] dizzying set of formatting o[illegible] font choices, and color-separ[illegible] capabilities they know little

Pages Software has co[illegible] with a solution called Page[illegible] takes a new approach to pa[illegible] out by embedding the exper[illegible] professional designers into [illegible] software. By separating form[illegible] content and limiting the nu[illegible] of decisions that must be n[illegible] the user, Pages hopes to brin[illegible] ability to create great-lookin[illegible] ments within the reach of th[illegible] age office worker.

While traditional page-l[illegible] software like PageMaker m[illegible] page layout accessible by em[illegible] the metaphors familiar to p[illegible] sional designers, Pages aba[illegible] those metaphors entirely in f[illegible]



Using Pages by Pages, the same docum[illegible]

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Freedom From Choice

With design smarts built in, Pages creates stylish business documents

by LEE SHERMAN

Desktop publishing has proven to be a liberating tool for professional designers. For business users, however, increasingly complicated DTP software has meant wasting time with a dizzying set of formatting options, font choices, and color-separation capabilities they know little about.

Pages Software has come up with a solution called Pages, which takes a new approach to page layout by embedding the expertise of professional designers into DTP software. By separating form from content and limiting the number of decisions that must be made by the user, Pages hopes to bring the ability to create great-looking documents within the reach of the average office worker.

While traditional page-layout software like PageMaker makes page layout accessible by employing the metaphors familiar to professional designers, Pages abandons those metaphors entirely in favor of its own iconic approach. Pages' document architecture breaks a document down into its components, describing such elements as titles, body text, graphics, fonts, columns, and headers and footers. By grouping these elements under various palettes, the program offers a logical way to think about the overall composition of a page. Each element is assigned one or more styles, all of which are designed to work in harmony.

Design-model styles are contained in design models along with rules for placing elements. With 23 different elements and an almost unlimited number of styles for each element, a single design model can provide hundreds of variations on a common theme.

Pages ships with four design models, and additional styles are expected to be sold by Pages Software and third parties, much as fonts are today. Besides providing an additional revenue stream for the company, these aftermarket design models will allow the program to be customized for vertical markets such as legal, medical, and financial.

The starter set includes Victory, for general business communications; April, for a high-style look; Victory Presents, for making slides and overheads that complement the look of Victory; and Writer, for basic word processing. Developing your own or modifying the existing design models requires an additional program called the Designer Toolkit.

Behind each design model are underlying constraints that prevent you from making a design faux pas but allow enough control so you aren't held hostage by the software. Instead of presenting you with a confusing number of features, Pages uses its built-in intelligence to provide only the options that are appropriate in a given context. At minimum, you can just rely on the default styles provided for each element and be assured of a properly designed page, useful if your plane is leaving in an hour and you need to finish a 25-page sales report, complete with multiple columns, charts, and captioned graphics.

Pages is aimed toward the novice – but if this was all it could do, only robots would use the program.

With the tailoring option, you can adjust certain elements, creating styles of your own. These styles remain independent of the design model but can form the basis for templates that can be applied to other documents. Since tailoring lets users make changes that fall outside of a design model's rule base, it can defeat Pages' stated purpose. For corporate sites that need

Pages (beta)



Pages is a new idea in document creation that frees users from the details of page layout by putting the expertise of professional designers into software. Excellent for creating a coherent look and feel for a company's documents. May be too restrictive for some users.

$795 includes four bundled design models; additional design models priced between $100 and $300 each

$995 Designer Toolkit

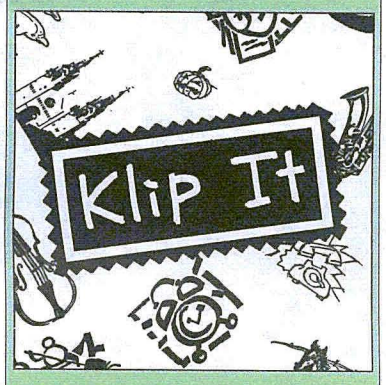
Pages Software, 9755 Clairemont Mesa Blvd., San Diego, CA 92124. 619/492-9050; 619/492-9124 fax; or e-mail: info@pages.com.

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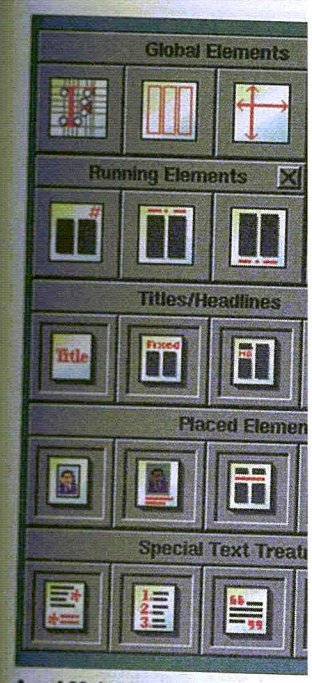
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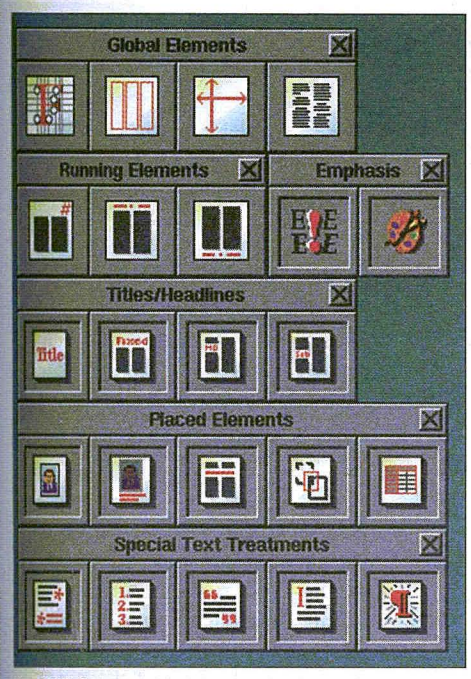
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What's a beta review?

NeXTWORLD reviews products while are in beta to give readers insights into newest products as they ship. Beta rati not take into account the stability (bug performance (speed) of a product. The mum rating available in a beta review is cubes. A four-cube beta product is, b feature set and interface, at least of fo cube quality and has hit a ceiling due to inability to judge the overall quality of th ished application. On shipment, a prod may remain at its rating or be upgrade downgraded.

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SIMSON0000161 4



Any of 23 document elements can be dragged onto a page.

it, Pages Software will provide versions of the software with the tailoring option permanently disabled.

The intelligence built into the software extends far beyond a few basic do's and don'ts. An underlying object-oriented document architecture makes it possible for elements to carry with them a sense of how they fit into the overall structure of a document. Elements can modify themselves by, for example, snapping to a grid to ensure their proper placement in the document.

Even more impressive is the ability to convert documents from one type of layout to another without the need for manual reformatting. It's possible to flip through design models on the fly, while Pages automatically maps elements in one style to their closest equivalents in another.

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NeXTWORLD reviews products while they are in beta to give readers insights into the newest products as they ship. Beta ratings do not take into account the stability (bugs) or performance (speed) of a product. The maximum rating available in a beta review is four cubes. A four-cube beta product is, by its feature set and interface, at least of four-cube quality and has hit a ceiling due to our inability to judge the overall quality of the finished application. On shipment, a product may remain at its rating or be upgraded or downgraded.

A new vision

Pages has maximized the potential of the graphical user interface in a way that hasn't been seen in a publishing program before. Other programs let you drag and drop graphics and text files into place, but Pages is the first layout program that lets you drop such items as headlines, page numbers, rules, borders, bullets, drop caps, and pull quotes directly into the layout. You can finish an entire layout without ever seeing a menu. The idea of dragging and dropping has been improved in less obvious ways as well. For example, any text can be promoted to headline status simply by selecting it and dropping a headline icon into place.

The visual orientation extends to the inspectors, which display representative thumbnails of the various styles. Pages can reformat an entire document with a single click.

The Document Manager provides a hierarchical overview, similar to the workspace File Viewer, of every Pages document. From here, you can easily create new documents and add new sections, stories, and style sheets to existing ones. It also provides a Recycler for disposing of unwanted items. Everything, including style sheets, is displayed graphically, so you can quickly see what choices are available in a given design model.

Pages' concept is not completely original. Style sheets and templates have been a standard part of word-processing and desktop-publishing packages for some time now. Pages has simply taken the idea to its logical conclusion. Typing into a FrameMaker template, for example, bears a superficial resemblance to working in Pages, but you can easily subvert the intent of the templates' original designer by choosing a different font. Pages makes it impossible to make a wrong choice.

The devil you know

This isn't the first time a NeXTSTEP program has attempted a paradigm shift. Lotus Improv claimed similar gains in ease of use and productivity, but after years of becoming used to cryptic cell addresses and obtuse formulas, users cried out for the traditional spreadsheet format of 1-2-3. For the experienced user, Pages is actually counterintuitive. If you plan on using it as your word processor, an idea that is encouraged by the inclusion of the Writer design model, you'll need to unlearn what you already know about formatting a document: The usual rulers, font panels, and page guides are completely missing from the program.

Also, unlike other word processors, any changes are made globally unless a special paragraphs option is used. For the intermediate user, there is the danger of being hemmed in by the rules of a design model on one end and the complex task of creating a new model on the other. For example, only fonts approved in the design model may be used in the document, since the program does not allow access to the standard NeXT font panel.

These concerns aside, Pages is a welcome addition to the platform. Compared with FrameMaker, a specialized tool for technical publishers, and PasteUp, a more traditional tool for designers, the Pages system represents a breakthrough in document processing that should appeal to users at all levels.

Besides relying on the program's built-in intelligence to help them create professional-looking pages, newcomers can use the program's Resident Expert feature, which provides information about using different design models. Professional designers will appreciate the opportunity to immortalize their designs in software. And most everyone else will spend more time on the beach and less time tinkering with their documents.

LEE SHERMAN *is a* NeXTWORLD *contributing editor.*

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3-D All Around

Three modelers add dimension to the NeXTSTEP graphics environment

by DAVE JACOBS

If you are a graphic artist, designer, multimedia producer, or engineer, or just interested in proof-of-concept visualizations, 3-D modeling and rendering software is an especially important category to look at today. The new 3-D programs invite artists to construct – and not merely represent – form, space, and texture, giving users and viewers a new perspective about the physical world in which we live. They also provide the creative opportunity to consider compositions from multiple points of view.

While 3-D tools have been available on other desktop platforms for several years, there is now an explosion of NeXTSTEP 3-D software taking place – the result of the Pixar RenderMan support and 3DKit development environment built into the OS. Developers can count on this support without having to build its cost into their product.

In this review, we take a look at three new 3-D modeling products: solidThinking by Gestel Italia, Frontface from nPoint, and a new version of 3D Reality by Stone Design. Frontface and solidThinking are high-end modelers for the serious graphics artist, while 3D Reality is for less demanding tasks and is priced accordingly. Two other new products still in development are Perspective from Appsoft and Intuitive'3D by Cub'x Systèmes.

All the modelers reviewed take a different approach to creating shapes and rendering objects. Each includes a rich set of tools to create 3-D models – starting with lots of geometric primitives with quadrics (spheres, cylinders, etc.); bilinear and bicubic parametric surfaces (Bezier, B-spline, etc.); and NURBs (Not Uniform Rational B-splines).

Fortunately, you don't have to know what these model types are to create and modify 3-D images using any of these products. Because they take advantage of the familiar NeXTSTEP environment, gaining efficiency with the products is generally intuitive.

Of course, now that NeXTSTEP is moving to '486-based Intel hardware, these products must measure up to standards already developed on the PC, Macintosh, and Sun platforms. As a group, the NeXTSTEP products are immature compared with leading 3-D modelers and renderers on other platforms. Nevertheless, they represent a compelling new software genre for NeXTSTEP users, and as they mature they may prove strong enough to attract 3-D artists from other platforms. And because 3-D is most often used as a component of larger projects, such as animations or presentation, NeXTSTEP's ability to work seamlessly with other applications is a big win overall.

Frontface

In August of 1991, before RenderMan or the 3DKit were even announced, nPoint, in Niles, Illinois, started developing Frontface. Frontface lets you create superb 3-D graphics through the use of intuitive illustration tools, which create 2-D shapes and extrude them out to three dimensions. Frontface was developed for the illustrator who is new to 3-D drawing. It incorporates the conventional desktop-illustration tools and user-interface paradigms found in Adobe Illustrator and Aldus Freehand, allowing users to easily make the transition to creating 3-D objects.

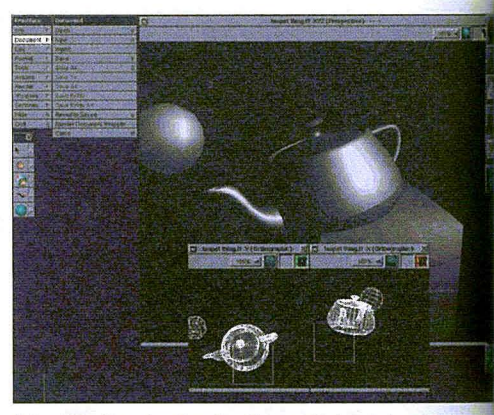
Frontface (beta)

A high-end modeler with excellent support for imported RIB files. Suffers from some interface weaknesses.

$995

nPoint, 8026 N. Washington, Niles, IL 60714. 708-825-7278; or e-mail: info@nPOINT.com.

Frontface uses a variety of complex geometric shapes that work together. You can create a sphere, and convert and modify its profile into another shape. Then you can go back to the original geometry and tuck and pull at any point to create irregularly shaped objects.



Using Frontface involves juggling multiple windows, but each provides a wealth of control.

When creating complex models and applying rendering effects, though, users may experience frustration trying to manage the cluttered views and inspectors needed to work the software. We looked at a beta version of Frontface and were unable to judge the performance, stability, or documentation of the product.

Advanced users may want to import RIB files, which can then be manipulated and edited from every vertex from within Frontface. This feature goes beyond other NeXTSTEP 3-D products, which allow you only to reposition objects or edit colors and shaders on imported RIB files.

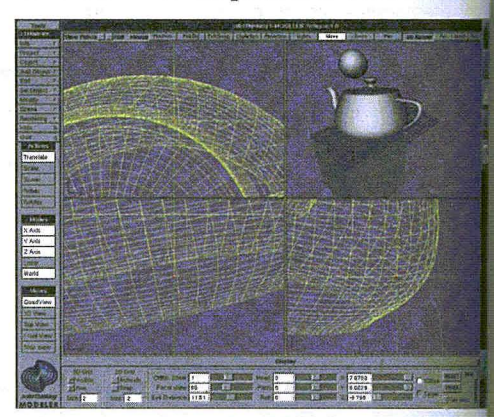
To preview your model after you've applied color and shaders, Frontface has a Render to Window option that gives you quick feedback. You can continually modify your shaders, colors, and lighting until you achieve exactly the look you're going for.

When it ships, Frontface should be one of the premiere 3-D modeling and rendering products available under NeXTSTEP.

solidThinking

This advanced 3-D modeling environment from Gestel Italia allows you to create high-quality, photo-realistic images. The heart of the program is the Modeler, which was designed for a user with no previous knowledge of 3-D production. The main panel has the standard four viewpoints: three orthogonal (top, front, and side) and one perspective (camera view). From within these viewpoints, you can choose between wire-frame, flat-shading, and gourand-shading display – all of which can be controlled by your mouse. The Modeler interface lays out all the tools and functions within easy access, keeping the work area clean and usable.

To create a model, you begin with the Primitive panel, which allows you to work on a series of simple objects – plane, cube, disk, sphere, cone, cylinder, hyperboloid, paraboloid, and torus. These ready-to-use primitives can be modified



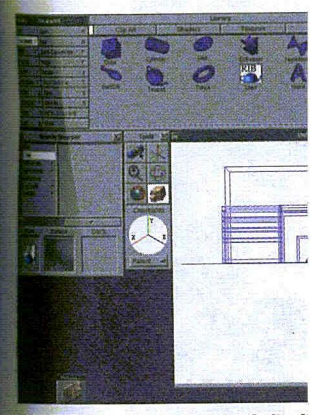
Gestel's solidThinking takes full advantage of the desktop, while at the same time allowing detailed control.

solidThinking 1.033

A high-end set of 3-D modules with a great depth of features and good user interface. Advanced features result in a steep learning curve.

$1400

Gestel Italia, S.S. verso Verona 279, I-36100 Vicenza. 39/444/34.07.70; or e-mail: info@fintelit.next.it. In the United States: 303/799-6223, 800/452-7608; or e-mail: info@alembic.com.



3D Reality's simple interface lends itself to using the drag-and-drop metaphor.

various ways and then added to the main scene.

A morphing capability allows you to create new primitives via a metamorphic process between two basic primitives. You begin by selecting a starting and an ending primitive. You then set the degree of morphing and obtain a result, a shape from the software interpolating between the two.

The Profiler panel is one of the program's most powerful tools. It has a complete planar editor that allows you to create complex extruded or lathed objects starting from a 2-D profile. You can add holes, or twist, scale, and stretch models so that it is extremely easy to create shells, springs, or worms, for example. The planar editor is laid out simply, with the 3-D interactive view display on the right of the panel, the bidimensional editing view on the left, and the control section on the bottom.

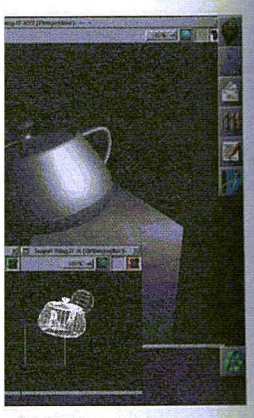
The program has an easy-to-use shader builder that lets you create complex customized shaders without being familiar with the language of RenderMan. It automatically generates and compiles the shade with a high-quality preview. Overall, solidThinking provides somewhat greater depth of functionality than Frontface, but at some cost to the steeper learning curve. The documentation explains important points and gets you over rough spots. It was impossible to measure technical support because Alembic Systems International is just putting U.S. distribution in place at press time.

3D Reality

Stone Design's 3D Reality was the first 3-D modeler available for

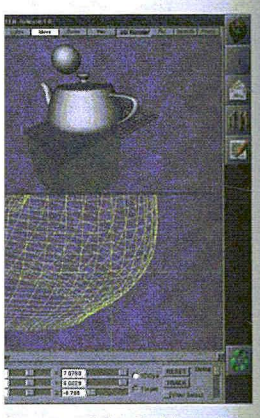
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3D Reality

Stone Design's 3D Reality was the first 3-D modeler available for the NeXT platform. We previously reviewed an earlier version of this product (see "Perception and Reality," *NeXTWORLD*, February/March) and were quite critical – but 3D Reality took those hard knocks because it is the first on the market. On the other hand, being first gives you the opportunity to learn from your mistakes and refine and improve on the original product. There's a common convention in the computer industry that 1.0 versions aren't actually finished and shouldn't be considered stable until the next version. The current shipping version, 1.2, overcame a lot of the crash-and-hang bugs that were irritating in the first version. And the Lights User Interface has been given a major face-lift, making the addition and editing of light sources easier and more intuitive.

3D Reality 1.2

A strong update of Stone's product, answering many previous criticisms. Great for midrange 3-D applications.

$495

Stone Design, 2425 Teodoro N.W., Albuquerque, NM 87107. 505/345-4800; 505/345-3424 fax; or e-mail: info@stone.com.

3D Reality is a less ambitious product than the Gestel and nPoint products because it is primarily designed to create small 3-D treatments as part of other projects rather than complex stand-alone models.

The Stone product uses a library metaphor for creating images – you can check out shapes, clip art, shaders, textures, images, and RIB files by dragging and dropping icons from the libraries into your work area. Objects in the work area can be fine-tuned with corresponding inspectors that allow you to change detailed aspects of objects, like their shape, camera angle, shaders, and lighting effects.

The Shapes Library ships with 16 fully editable objects. If you're not a programmer and have no desire to do scripting, you can still add to your library of shapes by adding models you create to the Clip Art Library for reuse in any 3D Reality document.

The Shapes Library includes a surface-revolution editor for creating lathed objects (2-D images rotated around a defined axis) and an extrusion editor (which extends a 2-D object into 3-D space). A built-in text extruder easily creates 3-D text effects from any font included in your system.

Version 1.2 has more than 20 new features and numerous bug fixes that make 3D Reality a very usable product for a quick 3-D logo production or visualization. Our evaluation of this product has gone up since the original review.

Conclusion

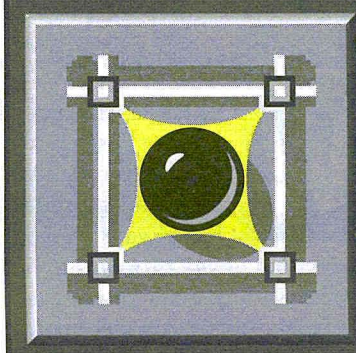
To be frank, all of these products suffered from crashing problems. Since they all behaved about the same, we think some of this has to do with the underlying NeXTSTEP 3-D engine. But crashing every once in a while is common across all platforms in the highly complex 3-D work environment.

Despite the stability problems, each of these products contributes value to an integrated NeXTSTEP graphics environment. Gestel's solidThinking has the most depth but the highest learning curve. Frontface has superior handling of imported RIB files, a critical feature. Since cleaning up its earlier shortcomings, 3D Reality is a worthy competitor, especially for less complex projects.

DAVE JACOBS *is a consultant on multimedia hardware and software. He can be reached at bigdave@applelink.apple.com.*

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Sharper Image

Appsoft improves on the Photoshop standard for NeXT image processing

by TONY BOVE *and* CHERYL RHODES

With the advantages of Display PostScript and fast throughput, the NeXT machine has always seemed perfect for image processing, but applications have been nonexistent until now. Finally, Appsoft Image ($995) is available to make NeXTSTEP a viable system for image processing, while also providing excellent tools for painting, airbrushing, and adding PostScript shapes to images.

Although image-processing users don't typically exhibit platform loyalty, the Mac is still the most popular box due to the enormous success of Adobe Photoshop. Any vendor releasing an image-processing program on any platform must contend with Photoshop as a competitor.

Fortunately for NeXTSTEP users, Appsoft Image provides nearly all the features of Photoshop, along with additional features, such as drawing tools, to make it especially attractive to designers and illustrators who do both types of jobs. With the capability to copy and paste EPS graphics, you can composite high-resolution graphics with a scanned or painted image, employing anti-aliasing to smooth the edges.

Image on a NeXTstation Turbo Color redraws the screen much faster than Photoshop on a Mac Quadra 950, so you can actually drag the image around the screen while viewing it (rather than dragging an outline of the window). Image manipulation and filtering are also faster on the NeXT, unless you soup up a Mac Quadra with a Photoshop-filters accelerator.

Like Photoshop, only better

The Tools palette offers everything for viewing, selecting, editing, and painting an image. Selection tools, erasers, and shape-painting and fill tools are grouped together, so it is easy to find the appropriate tool. The Tool Preview, which appears at the bottom of the palette, is a cool feature that shows the currently selected settings, such as line width, transfer option, and painting mode for the selected painting tool. Image automatically anti-aliases the characters in the image.

We were quite pleased with the selection tools and multiple levels of undo, especially the abilities to create a Bezier selection by drag-selecting with the pen and to soften the edges of a selection. The Tolerant Eraser lets you erase similar colors, based on a tolerance level you select, and the Revert Eraser restores part of an image to its latest saved version. The usual sharpen, blur, smudge, and crop tools are provided along with polygon, multigon, and other shape-drawing tools. Even a freehand shape tool is included, allowing Image to act like a miniature version of Virtuoso.

The Colors command lets you open the standard NeXTSTEP Colors panel to apply colors, giving the user a wide choice of color models. The Spectrum model (which lets you use a TIFF image as a color palette) is particularly useful if you are attempting to match colors in another image.

Transfer options control how paint is applied – you can paint on top or behind another image, paint with a transparent background, or lighten or darken images while painting. These options make it quite easy to add shadows and depth to images.

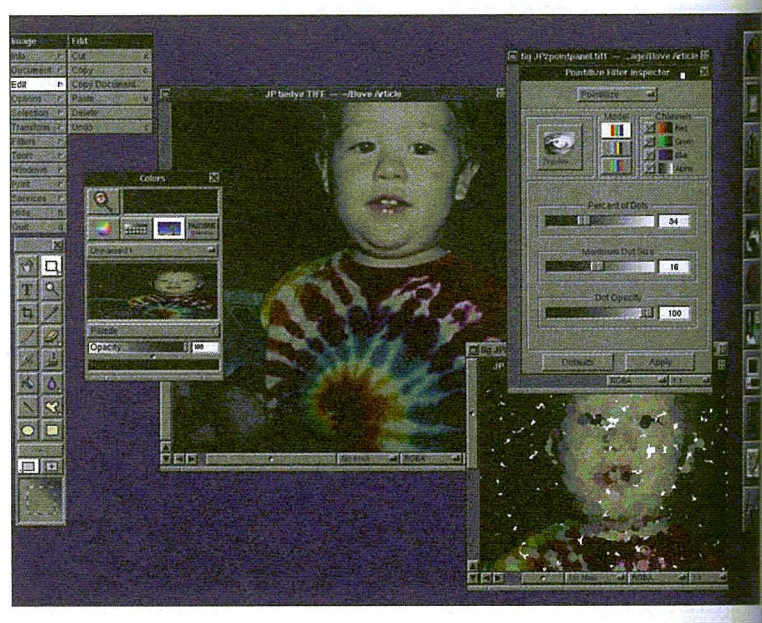
Special effects

An image-processing program would not be useful without the ability to mask areas (to keep them unaffected by airbrushing, painting, etc.) and to work in separate channels (one for each channel in the color model: red, green, blue, and alpha). The Mask Inspector panel lets you name and edit masks for the image, which are defined using the selection tools. The channel operations provided in Photoshop, such as adding, subtracting, multiplying, blending, and differencing, are also offered in Image, so a power Photoshop user should feel right at home.

The program offers 25 built-in special-effects filters, including motion blur, unsharp mask, pointillize, swirl, and wave distortion. Filters can be applied to any channel of an image, all channels, or to any combination of channels.

Recognizing that image-processing customers may have other computers with scanners or other sources of image files, Appsoft Image can import and export 14 different image-application file formats, including Photoshop. The program lets you perform color balancing and adjust the brightness and contrast, and you can calibrate your monitor for multiple output devices.

Appsoft has combined an impressive set of preferences for choosing how to approach different operations, such as handling documents, specifying color separations, and selecting printing inks and halftone settings. It is necessary to be able to choose whether or not to maintain an undo buffer (for unlimited undo levels that depend on the amount of free memory), set the default pixel depth for documents, and specify various color printing and ink options, such as undercolor removal, gray-component replacement, dot gain, black-ink limit, total-ink limit, and the percentage of black for the black plate of a color separation.



Using a TIFF image as a palette with the Spectrum color model in Appsoft Image, you can easily match the colors. On the right, the image has gone through the pointillize filter. (The photograph is of John Paul Bove, age 3.)

Overall impressions

Appsoft Image is a trifle unstable. For some reason, after making a particularly complex selection with the wand, we could not change the selection, and when we tried to change selection tools, the program crashed. However, problems like these were few and far between.

We'd like the program more if it could acquire Photoshop plug-in filters but are otherwise impressed with Image because it provides nearly all the features we expect to find in a worthy Photoshop competitor.

TONY BOVE *and* CHERYL RHODES *are the publishers of the* Bove & Rhodes Inside Report on Multimedia and Publishing Technologies. *They can be reached on the Internet at t-and-c@toad.com.*

Image 1.01

An excellent initial entry into the image-processing field under NeXTSTEP. Surpasses Adobe Photoshop in some ways but misses a few key features.

$995

Appsoft, 255 Shoreline Ave. #520, Redwood City, CA 94065. 415/802-2900, 800/428-2777.

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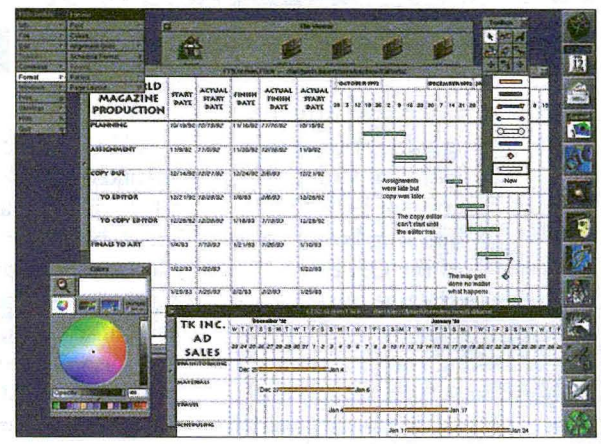
Of better visuals mean smoother projects, FastTrack Schedule from AEC Software could rescue even the roughest jobs. This charting program shows it like it is, articulating everything from lateness to the dependency of one particular activity on another. The result is a simple, commonsensical system that sacrifices features associated with more complicated project managers in the interest of presentation quality and ease of use.

The program, a Gantt chart scheduler, relies on a grid format, with dates along the top (and bottom, if you like) and activities along the side. Users create a series of bars to indicate the spread between start and finish dates.

You start out by establishing scale – hours, days, weeks, months, etc. – with the Schedule Format panel and by listing activities in an outline-style hierarchy. At the Toolbox, you settle on a drawing tool (there are nine) and a bar style. The Activity Bar Setup is for customizing bar length, width, color, and outline; the same options are available for designing milestones to mark key dates.

Columns (data fields) provide more detail. Existing column types display standard chart information such as start and finish dates, duration, or actual start and actual finish. The data automatically updates your bars, and vice versa. Each chart can accommodate up to ten of these columns, and any number of them can be frozen in place so they don't disappear when you scroll to the right.

Most users will probably take advantage of the Bar Links, which show dependent relationships between separate activities – and track delays. If the space between two activities is fixed, you connect the bars by a hard link. As time passes and the earlier bar stretches into the future, it pushes the later bar with it. Soft links show two activities that are connected in some way but can't change each other – until they start to overlap.



FastTrack Schedule shows everything from lateness to the dependency of one activity on another.

The program's ability to juxtapose scheduled and actual work is more useful. You can run bars or lines alongside an activity to compare what staff were supposed to do with what they did. Another tool specifies the percentage of an activity that's complete.

FastTrack Schedule isn't set up to manage large-scale projects; there are no facilities for analyzing complex data, such as costs or staff resources. Also missing are on-line assistance and options for fine-tuning the style of scale rows and other areas of a chart. But the product makes up for any shortcomings with simple usability. The accessibility of the various panels is complemented by excellent formatting and printing capabilities.

The instruments for getting your shop in order are all there; just add the people.

by SALLY CHEW

FastTrack Schedule 2.0

This Gantt-chart scheduling program does a solid job of organizing projects and tracking progress.

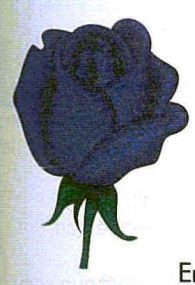
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A Better Librarian?

Digital Librarian (DL), included with every copy of NeXTSTEP, has long been a jewel of the OS. By enabling users to search large quantities of data for selected items, DL is the key to making your computer files truly different from a paper filing system. But DL is limited in significant ways, leaving an opportunity for a third-party developer to release a commercial alternative with added features.

Vertex Librarian 1.2



Conceptual searching and hypertext linking are added to standard Digital Librarian features, but interface flaws contribute to a less-than-pleasant experience.

$399

Vertex Software, 115 Evergreen Heights Dr., Pittsburgh, PA 15229. 412/931-7600.

Vertex Librarian, billed as "the advanced Digital Librarian for NeXTSTEP," is a substantial accomplishment, but it is not for the average NeXT user. It provides many features not found in DL, such as conceptual searches, hypertext linking, and the ability to index data files stored on CD-ROM. Unfortunately, a confusing user interface makes Vertex Librarian difficult to use.

Unlike DL, you can't just drag folders to the Shelf and start searching them. Instead, you must first create an Info Base – a list of things to search – and then drag folders and files into it. Files are then automatically indexed in the foreground, blocking all other uses of the program until the indexing is complete.

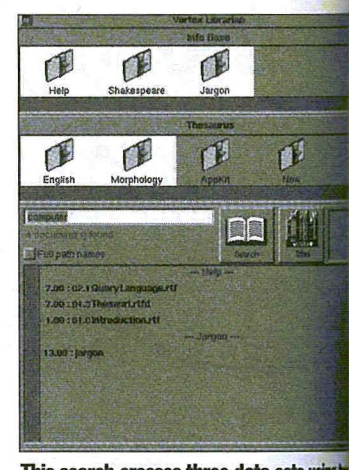
On the positive side, the program can index any number or date that it finds in a document; this lets you construct a search that will find, for example, all the documents containing a date between July 3, 1987, and July 4, 1992.

You can also manually create hypertext links between words in different documents. Since the index files and links are stored in a special directory, Vertex Librarian can easily index data stored on CD-ROM – something that DL can't do.

By placing your search query inside curly braces ({ or }) and highlighting a thesaurus or two, you can perform a conceptual search. A conceptual search on the word "geek," for example, might produce files with the words "nerd," "freak," or "chicken decapitator," depending on the thesaurus you use.

Vertex ships Vertex Librarian with several thesauri – standard English, Morphology, and the NeXT AppKit – as well as an Info Base for on-line help. Creating your own thesaurus is a job for experts; the company plans to offer thesauri of medical and legal terms later.

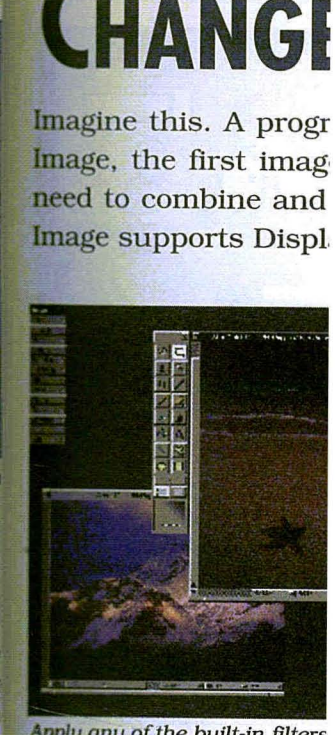
Vertex Librarian can't decide if it has an icon- or menu-based interface. The Info Base and Thesaurus menus use nonintuitive Import and Load commands for putting Vertex-formatted items on the Shelf. Adding new material is accomplished only by dragging. There is no obvious way to change the name of an Info Base once it is created.



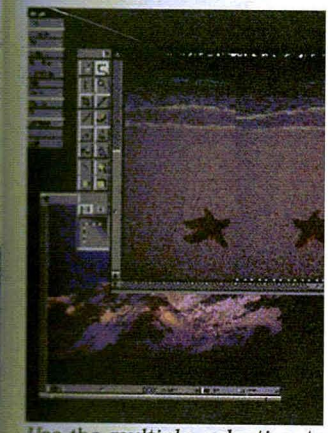
This search crosses three data sets using two different thesauri.

Count on spending a week to learn all of the ins and outs of Vertex Librarian. While this program excels in doing searches through large document sets, it is not for the casual user.

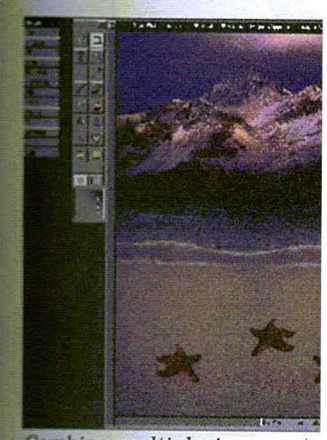
by KRISTIN DYER
Simson L. Garfinkel contributed to this review.



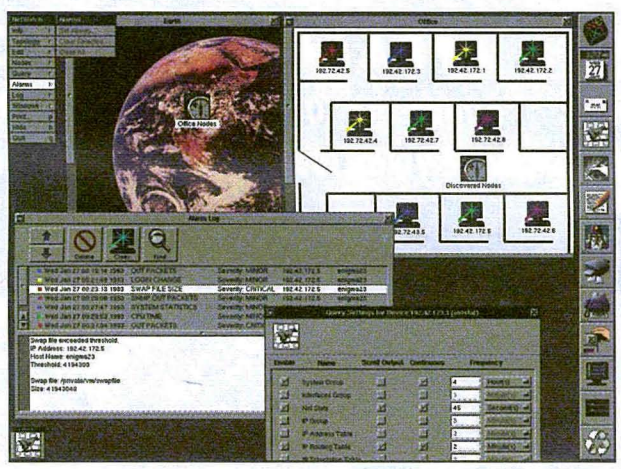
Apply any of the built-in filters



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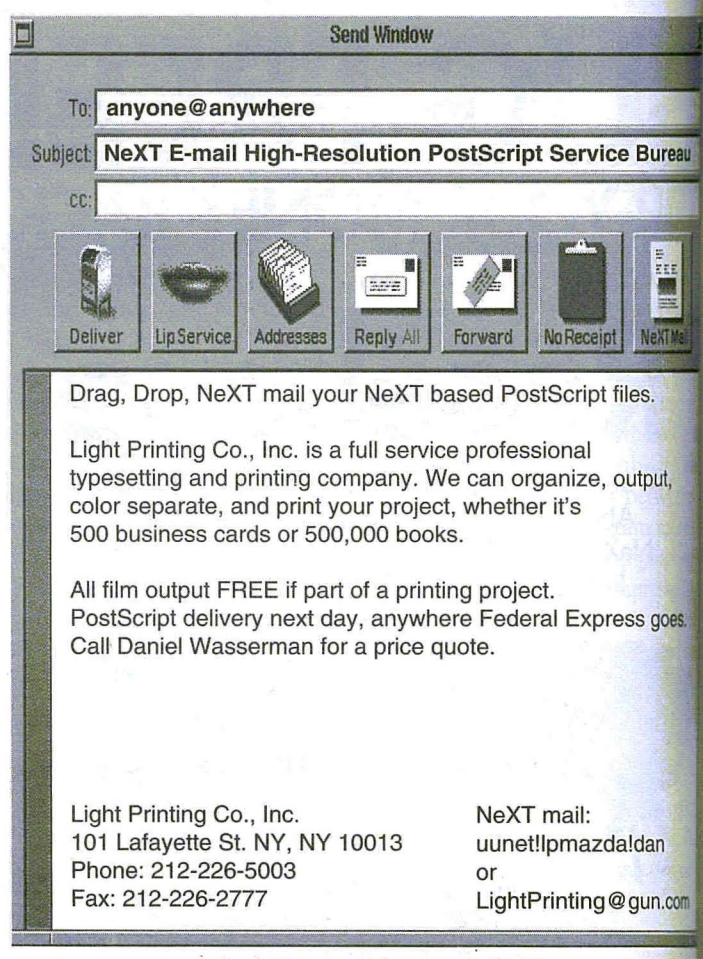
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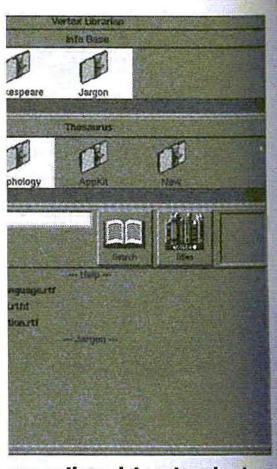
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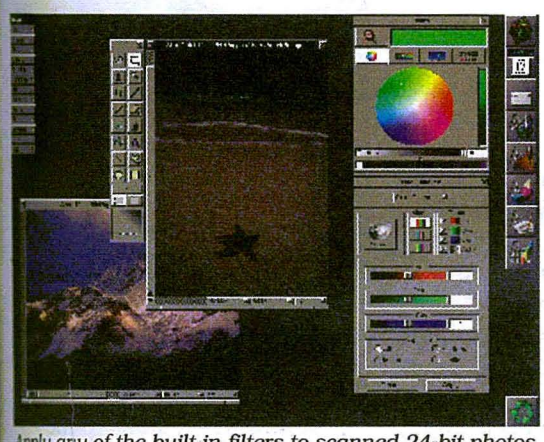
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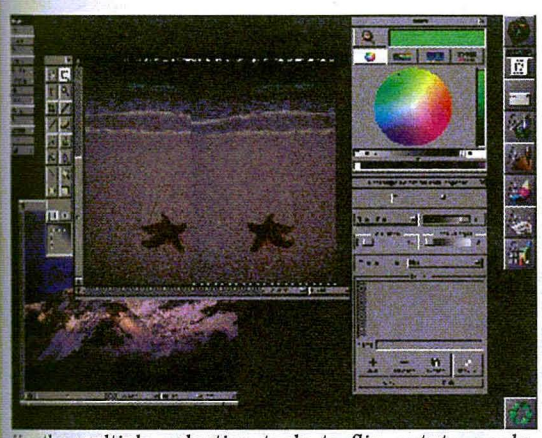
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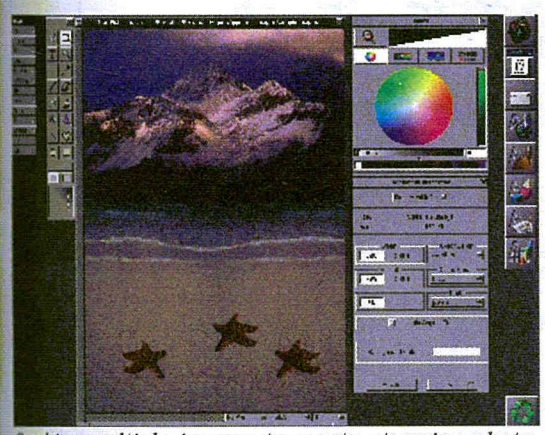
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Windows on Windows

White Pine steps closer to fully integrating X Windows and NeXTSTEP

If you are in the market for a NeXTSTEP X Window server and found the first release of White Pine Software's eXodus wanting, you might like to look again. White Pine's newest version now offers color and rootless windows, making it easier to integrate X applications into the NeXTSTEP environment. Unfortunately, eXodus's failure to integrate the X clipboard with the NeXTSTEP pasteboard still limits overall interoperability between the two environments.

eXodus is an X11 Release 5 display server with minor extensions. It supports multiple X screens in 2-bit grayscale, as well as 8-, 12- and 24-bit color. Unlike NeXTSTEP, X Windows requires that a special window-manager program be used to display title bars and let the user manipulate windows on the screen. For ease of use, eXodus comes with the most popular window managers: Motif window manager (mwm), Open Look window manager (olwm), and Toms window manager (twm).

Installing eXodus is easy. The beta copy reviewed comes on 15 high-density diskettes and has two packages to install. One package contains **eXodus.app** and the X Window System files; the other contains X Window client programs. Installation must be done as **root** to create files in **/LocalApps**, **/usr/bin/X11**, **/usr/lib/X11**, and **/usr/man/man1** directories. You'll need 20MB of disk space.

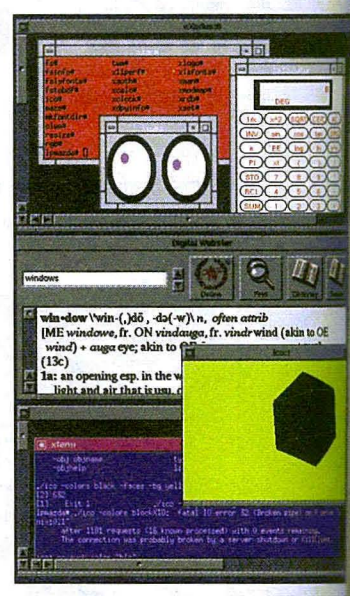
You can configure the eXodus environment from inspectors in the Preferences panel. The Global inspector sets security, the number of virtual screens, and update speed. Each screen inspector modifies the size of screens and enables either the built-in, rootless, or Motif window managers. Other inspectors set screen-background patterns, colors, button emulation, and font paths. The program's flexibility is impressive: Our test system had the rootless, Motif, and Toms window managers running concurrently in separate virtual screens. The Open Look window manager, however, had some problems interacting with others and ran when it was the only window manager.

eXodus (beta)

An X Window System display server for NeXTSTEP computers based on X Version 11 Release 5, this software is an addition to the company product line of X servers on Macintosh and Windows. It is the only product in its class that contains built-in program launching and ships with all three major X Window System window managers.

$349

White Pine Software, 40 Simon St. #201, Nashua, NH 03060-9868. 603/886-9050; 603/886-9051 fax.



Having X Windows among NeXTSTEP windows increases interoperability between the environments.

Several extensions to the X Window System standard are included in this product: non-rectangular shapes, Bezier drawing, multibuffering animation, and DECwindows server management. We found performance acceptable on our monochrome NeXTstation with 32MB of RAM even when

— NeXTWORLD Magazine

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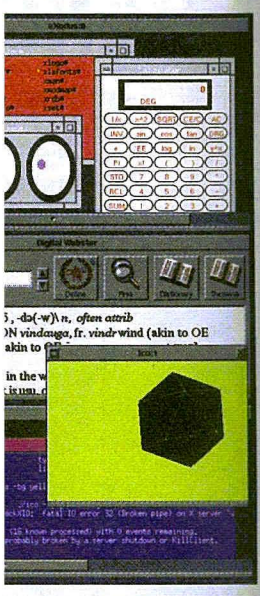
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"It's NeXTSTEP system software is years ahead of its potential rivals such as Microsoft Corp's. Cairo and Apple and IBM's Taligent systems."

BUSINESS WEEK, JANUARY 25, 1993

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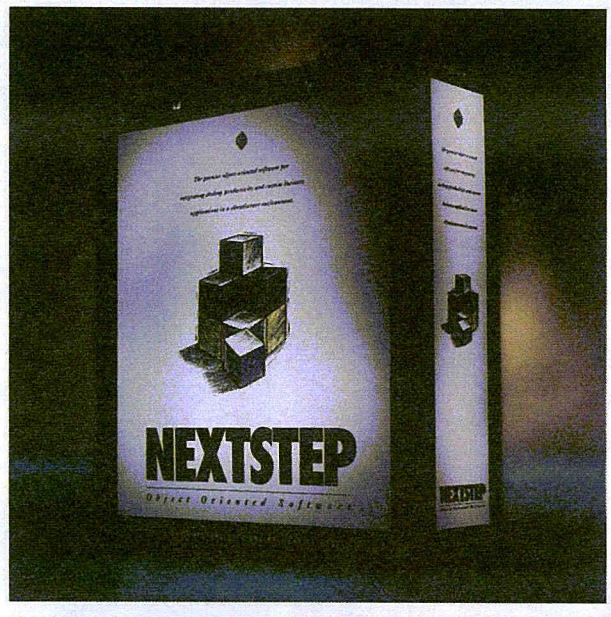
BYTE, OCTOBER 1992

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executing intensive animation applications. You can also tune the server's time-slicing between processing events and redrawing the screen, although the algorithm appears a little simplistic: A more sophisticated approach would allow the user to set fixed priorities for serving the two tasks.

Sadly, eXodus does not do as well integrating X applications with NeXTSTEP programs: You can copy images from the eXodus screens and paste them into NeXTSTEP applications or print them on the printer, but there is no support for exchanging text between the X clipboard and the NeXT pasteboard. And programmers should beware: White Pine does not offer the full X Window System development environment.

As with White Pine's versions of X for Microsoft Windows and the Macintosh, eXodus has session management built directly into the X server. Session management is how programs are started and stopped from inside a windowing environment. Standard X Windows offerings do not include simple methods to launch programs; instead, programs must be started by typing commands at the UNIX prompt of an **xterm** terminal window or from the menu of an X Window manager, which can be complicated to configure.

Most of your session-management configuration chores are handled by eXodus. The client-launch editor panel helps build scripts without complicated syntax or editing by presenting a consistent user interface across all eXodus platforms. It enables you to start X-client programs residing on the local computer or from a remote computer on the network; select a menu item associated with the script and the X-client program will launch. Once scripts are installed, a user does not need to know how to enter esoteric UNIX command lines. An administrator still needs to configure and test launch scripts. Some problems with permissions and network configuration can cause launch failure during initial setup. Ah, the joys of system administration!

Overall, this beta release is far superior to the first eXodus release of last year but still leaves the user feeling that running X programs on NeXTSTEP is like stepping into a foreign world. ◆

by JOE BARELLO

RDR University

RDR's Advanced Technology Solutions Group (ATSG) is the authorized provider of NeXTSTEP™ training in the Washington, D.C. area, offering a range of classes for users and developers of all experience levels. Under the RDR University curriculum, students are given their own workstations, are taught by experienced instructors and offered Hot-Line Support to ensure their success outside the class. Government and commercial organizations are turning to RDR as their NeXTSTEP training provider. Call 703/591-9651 for course information, schedule and registration.

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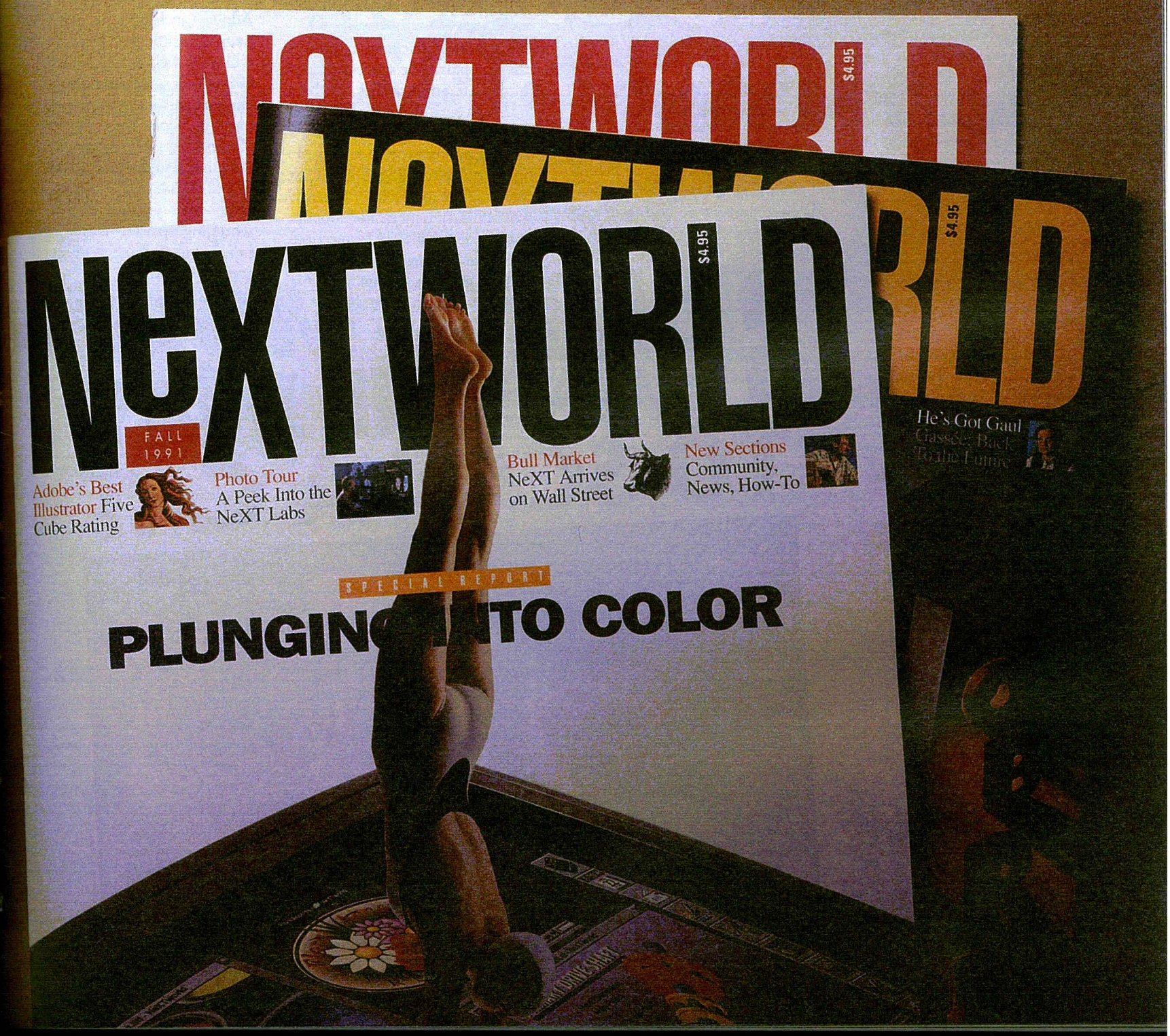
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Reviews Desk

Much of the gang's time this month was taken up judging products for *NeXTWORLD*'s Best of Breed (BoB) awards to be announced at NeXTWORLD Expo and in the next issue. But we couldn't ignore this month's funky crop of products. They range from a program to make your NeXT a $5000 drum machine to one making the Slab a $5000 label printer. And you can't beat the price. A number of fonts have been shipping for years on the platform and this is our first stab at reviewing some of them. We'll focus on quality and usefulness of font packages. As for aesthetics, we'll leave that to you. – DAN LAVIN

This month's gang: JOE BARELLO (JB), SIMSON L. GARFINKEL (SLG), RICK REYNOLDS (RR), LEE SHERMAN (LS), AND DAN LAVIN (DL).

Rhythm King

$99
MIDIapolis Systems, 3208 W. Lake St. #133, Minneapolis MN 55416. 612/822-1604.

If you can't keep a beat, don't worry. Now your NeXT can do it for you. Rhythm King is a software equivalent of the drum machines that drive hip hop and techno-music, letting you record, sequence, and play back high-quality samples. Basically, you use a window with a spreadsheet-like grid for assigning sampled sounds to beats (patterns). Drum sounds work best for this kind of work, though any sampled sound can be used. No musical training is required. The included patterns, by famous session drummers, will get you started. Installation is a bit tricky, requiring some UNIX knowledge. Also, the meaning of various options in the Sound Inspector and Preferences panels are not always obvious to the beginner, but Rhythm King makes good use of NeXTSTEP's Help system in trying to explain them. **LS**

ICONgallery

$99
Trident Data Systems, 5933 W. Century Blvd. #700, Los Angeles, CA 90045. 310/338-3594; or e-mail: icons@tds.com.

ICONgallery's collection of 300 colorful TIFF-format icons (many of them animated) for customizing directories and applications is sure to bring an overdue sense of fun to NeXTSTEP. Although the program stops short of providing icon-editing capabilities, there's more here than dinosaurs and cartoon characters. Among the features included are exhibit halls for cataloging your own icons, the capability to install custom directory icons via drag and drop, tools for grabbing screen images, and a simple way to turn a UNIX shell script into a double-clickable application complete with a custom icon and on-line help. Using the option to automatically open the icons in the Icon or IconBuilder programs rounds out a complete icon-management environment. **LS**

Designer Labels

$99 single user; $299 network upgrade; $349 singer user, including hardware
Marble Associates, 1541 North First St., San Jose, CA 95112. 408/436-7299.

Labeling on the NeXT has always been a chore; you had to use an entire sheet of Avery labels and hassle with the formatting. Marble Associates has the answer with Designer Labels and the LabelWriter printer. The software quickly creates one-shot labels with multiple fonts and graphics. A labeling service lets you select text in an editor and print a label or create tab-delimited files from your favorite database and print the mailing list. The hardware is a small dedicated printer that spits out one label at a time from a roll. It currently supports only 128 by 144 dpi and is slow – not as quick and detailed as a laser printer but certainly easier to use. **JB**

ScreenCast

$160 per user
Otherwise, 1501 Lowe Ave., Bellingham, WA 98226. 206/647-9436.

ScreenCast broadcasts the display of one NeXTSTEP computer to other computers on the same network. Everything that appears on the sender's display – typing, window movements, mouse actions – is simultaneously echoed on the displays of receiving machines. In addition, receiving machines in a session can manipulate the sender's display. Immediate applications for this innovative product might include multiuser electronic conferencing for training and corporate technical support. For training, ScreenCast could replace the need for expensive projection equipment. For support, combined with a voice connection, ScreenCast can take the place of a physical meeting. ScreenCast is the next best thing to being there. **JB**

WSI-Fonts Professional Volume #1

$149; student price $99
Abstract Software, P.O. Box 25045, Seattle, WA 98125-1945. 206/361-5080.

Weatherly Systems, an Alabama-based font foundry, designed this collection of 123 typefaces mostly from the inspiration of traditional fonts from famous designers like Goudy, Gill, Caslon, Bodoni, and Garamond. The collection covers all the basics for most publishing tasks. While they may not match the quality of the industry benchmark set by Adobe Systems, the fonts are all good and include text, script, display, and specialty typefaces. Each is complete with kern pairs. The accompanying manual is exceptional, with informative discussions of each typeface and the principles behind its design. **RR**

Fonts For Design – Art Deco Collection

$30
Keystrokes, R.R. 1, Box 168. Barton, VT 05822. 802/525-8837.

Unlike the WSI fonts, don't plan to use this bargain collection of 62 typefaces to set your next newsletter. The entire collection comprises display faces, meant for large headlines, and are not designed for readability in standard 10- or 12-point sizes. Additionally, not all the fonts in the collection have been equipped with kern pairs, so the spacing between characters can be strange. If you are building headlines in Adobe TouchType, the lack of kern pairs is meaningless, and these faces will work well. Another possible use would be to take individual characters and convert them to editable paths in Adobe Illustrator or Altsys Virtuoso as a starting point for logo design. If you understand typography and have a need for an Art Deco–style typeface, or if you are whipping up a few clever invitations or posters, this collection could be useful. **RR**

Electronic AppWrapper

$24/year; $36/year international
Paget Press, 2125 Western Ave. #300, Seattle, WA 98121. 206/448-0845; or e-mail: aw@paget.com.

The *Electronic AppWrapper* is more than just a CD-ROM-based catalog of NeXT software: It's an exciting adventure into a multimedia world of music, poetry, computer animation, and Seattle-style insight. Brought to us by Paget Press, the disc contains descriptions for more than 100 NeXT products – many accompanied by screen shots, demo copies, and company histories. To order by e-mail, just click a button; the application automatically displays an order form, asks for your credit-card number, and sends an encrypted message to Paget. The *AppWrapper* also includes a listing of every NeXT user group worldwide, tips and techniques, and electronic stories that play while you browse the products. No NeXT should be without one. **SLG**



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Now monthly inside every issue of NeXTWORLD

That's right. **NeXTWORLD will now be available to you as a monthly magazine and NeXTWORLD EXTRA will once again become a regular late-breaking news section of the magazine. NeXTWORLD's move to a monthly frequency will serve the fast growing and expanding NeXTSTEP marketplace with timely and comprehensive news and information – all in one complete package.**

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NeXTWORLD will continue to serve you and our expanding base of new readers with in-depth special reports; product, technology, and issue-oriented features; no-holds-barred product reviews; and community profiles. New monthly coverage will place increasing emphasis on subjects related to object-oriented, client/server computing; reflecting the importance of NeXTSTEP for Intel Processors in corporate downsizing applications. And because corporate buyers rely on timely product and business news for technology planning, NeXTWORLD EXTRA will be included as a late-breaking news section of the magazine. Our rumor columnist, Lt. Sullivan, will reclaim his regular space in every issue.

By combining the pages of NeXTWORLD Magazine and NeXTWORLD EXTRA every month, you'll get both comprehensive NeXTSTEP product coverage and timely NeXT market news – from the most experienced, respected experts in the industry!

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We're excited about *NeXTSTEP for Intel* at NeXTConnection. Now everyone will be able to take advantage of the power of the revolutionary NeXTSTEP operating system on 486 PCs—the most competitively priced high-performance machines around.

Certainly, the transition will pose challenges for developers and users alike. But through it all NeXTConnection will be providing sales and support for customers running applications under NeXTSTEP on Motorola-based machines. And, as developers port programs to *NeXTSTEP for Intel*, we'll sell those versions as well.

Since starting NeXTConnection in 1990 we've provided a critical information link between users, developers, and NeXT itself. During this transition phase, we expect that role will prove to be more important than ever.

Of course we're no strangers to Intel micros. Our sister company PC Connection has been the leading mail-order supplier of software and peripherals for Intel-based machines since 1982. So we're in an ideal position to be your source for information on compatibility between Intel-based hardware and NeXTSTEP applications.

Regardless of the changes in the NeXT market, you can continue counting on us for all the services that have made us the best source for NeXT products: low prices, overnight shipping for just $3 (regardless of weight), toll-free technical support, money-back guarantees, and special pricing and support for corporate, educational, and institutional accounts.

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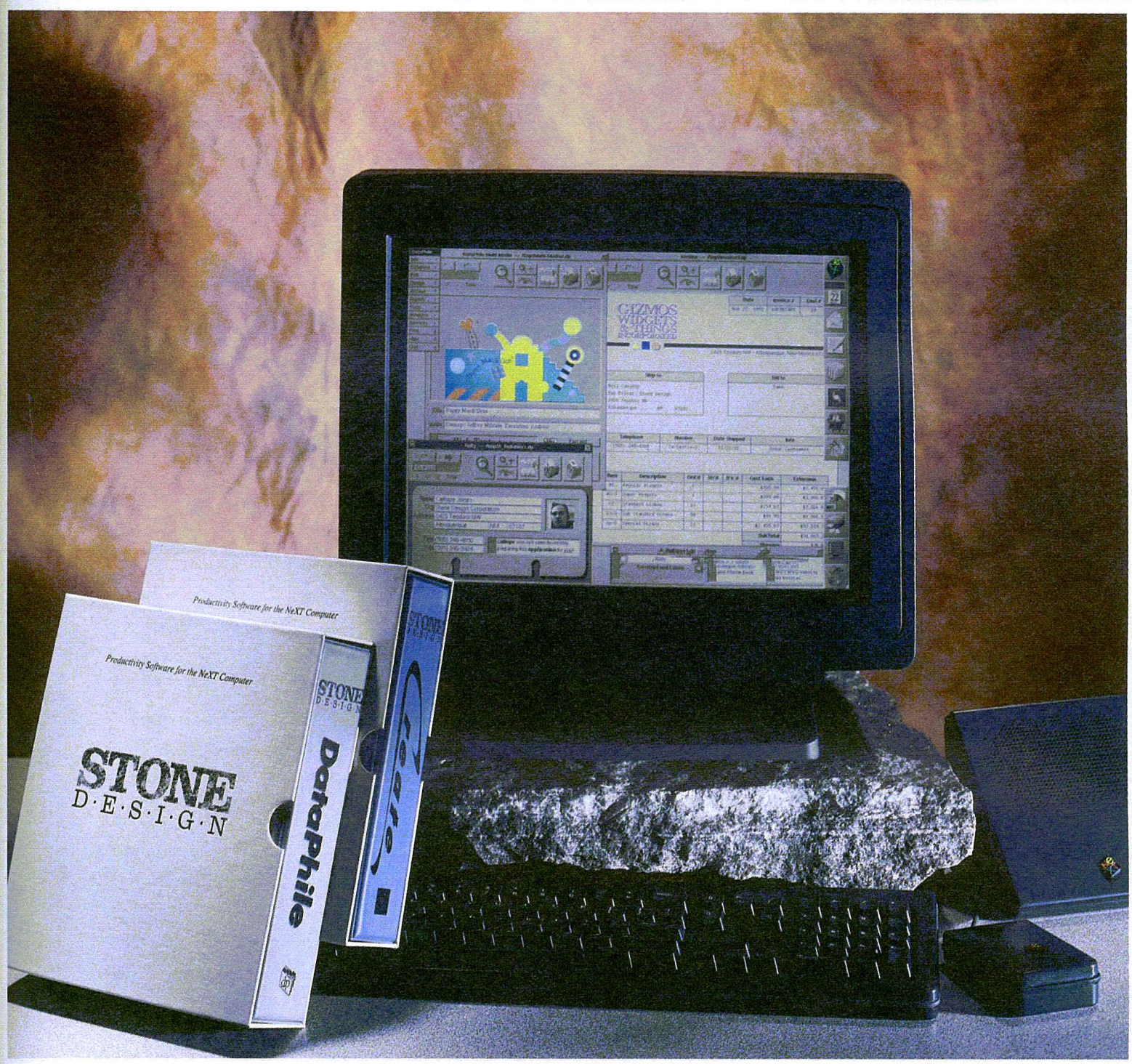
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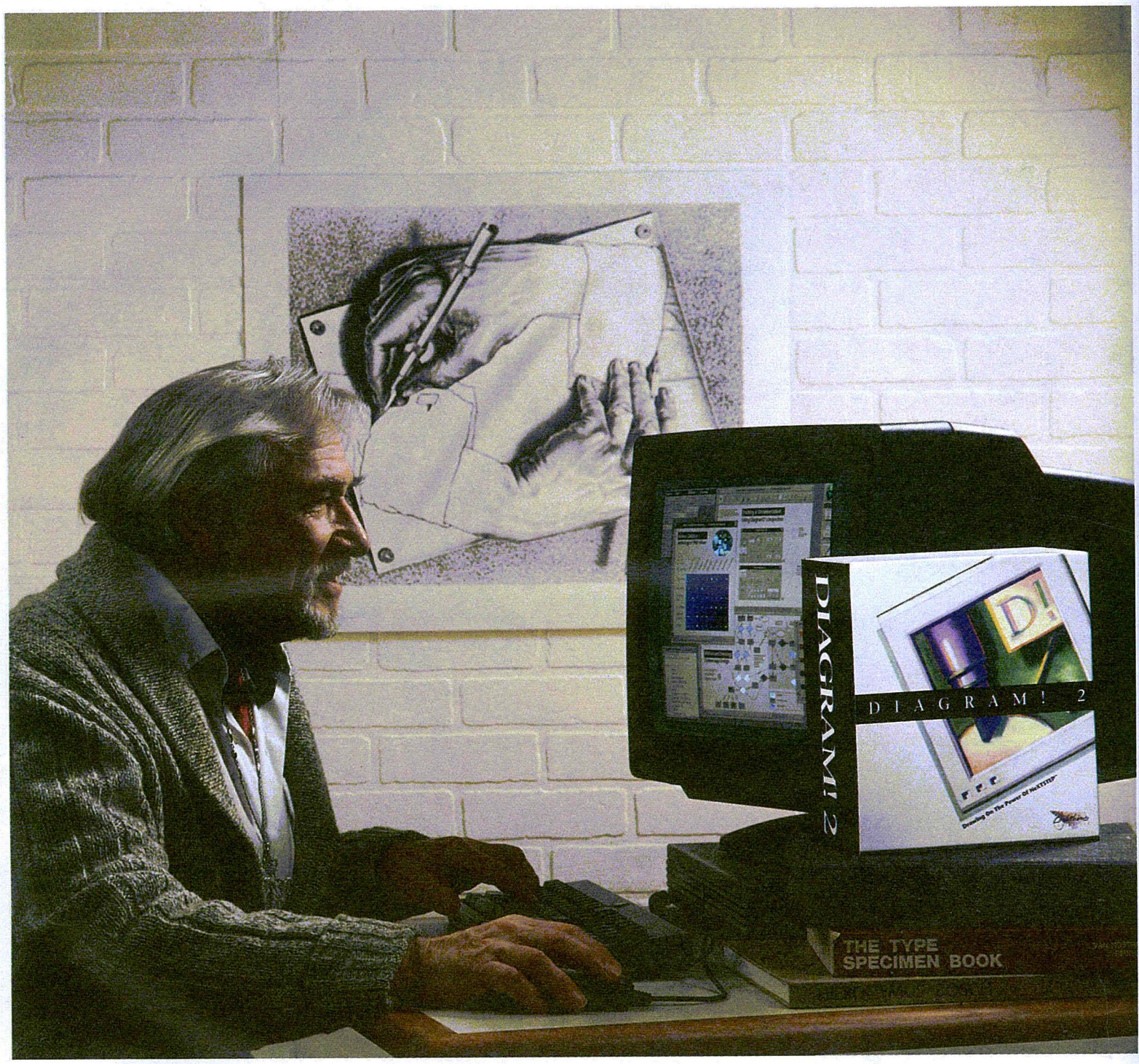
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1637	Dataphile 1.1	$529.
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Now in its second release, Diagram!'s enhancements include arbitrary rotation, Hot Linking to any NeXTSTEP application, an extensible "Palettes" menu in which you can display and retrieve custom palettes, and a documented file format, giving developers easy access to the information underlying many CASE or technical graphics. There's also infinite undo and redo, line labels that "know" where they belong, a button ribbon for easy access to Diagram!'s five drawing modes, simple table editing, and a whole host of other features too numerous to list.

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POWERFUL PRESENTATIONS COME TO NeXTSTEP.

CONCURRENCE

"Worth the price of a NeXT all by itself." That's how John Barlow described **Concurrence** (*NeXTWORLD* Spring '92), NeXTSTEP's first general-purpose presentation and outlining application, and one of the major highlights of the January '92 NeXTWORLD Expo. Created by the same team behind the best-selling *Diagram!*, Concurrence is the tool for anyone in the business of communicating through presentations.

Concurrence's outliner is built for brainstorming. The collapse and expand capabilities, drag-and-drop text, rulers, and labels make it a breeze to create even the most complex outlines. Plus, with the built-in spell checker and automatic topic formatting features, you can get professional-quality results immediately. You can even use multiple views to create several versions of the same outline, and modify them all simultaneously!

Just push a button to hot-link a presentation to your outline. With its voice-overs and drag-and-drop graphics, Concurrence makes multimedia presentations on your NeXT a reality today. To bring the true power behind NeXTSTEP to your Concurrence presentations, add file links from other applications (such as Diagram!) and choose from an impressive array of transition effects. You can also create multiple versions of the same presentations, using different fonts, colors, and backgrounds—they'll track each other word for word. In no time at all, you'll be preparing high-impact presentations for delivery across your entire organization!

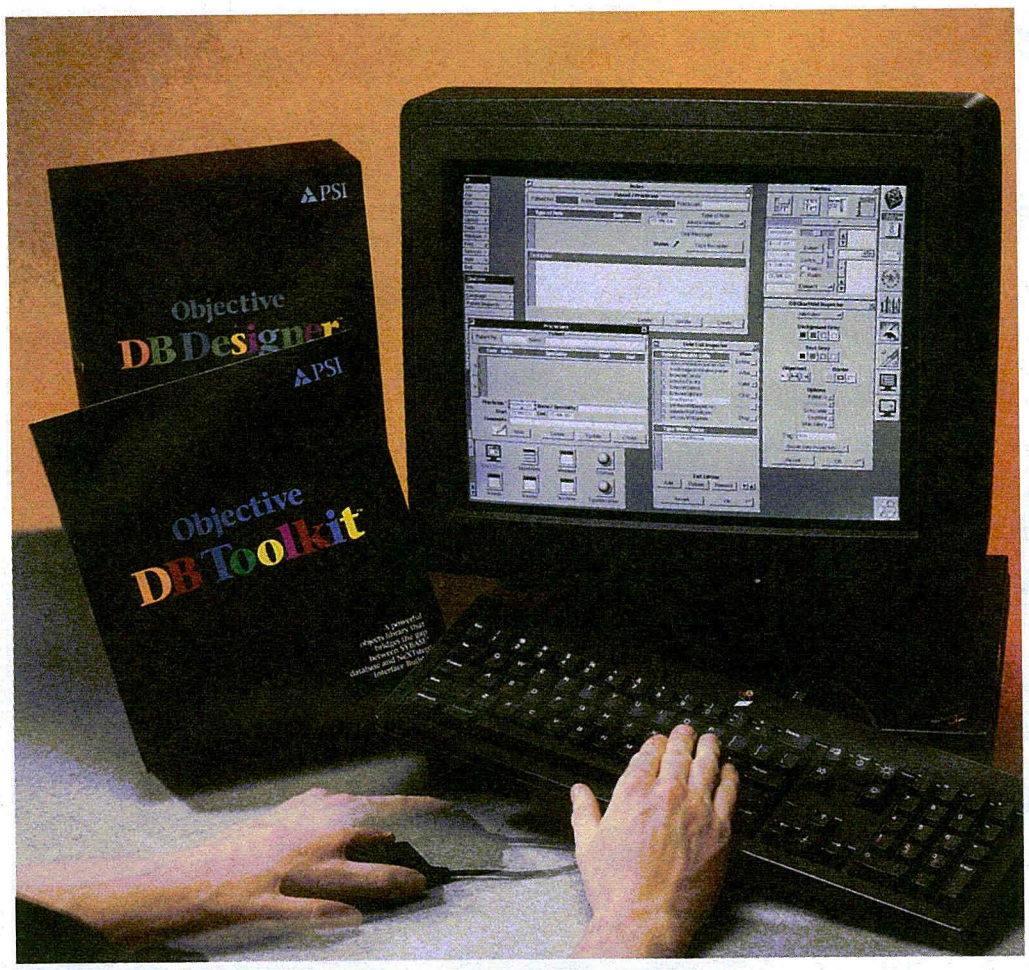
And when it comes to quality output—whether it's viewgraphs, 35mm slides, or overheads—just hook your NeXT to any PostScript output device or send your Concurrence documents via NeXT Mail to one of Lighthouse's qualified service bureaus. As the review in *NeXTWORLD* (Summer '92) put it, "Concurrence is a compelling piece of software that NeXT users won't want to live without."

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2409 Concurrence 1.1 **$795.**

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Professional Software

Power of Sybase at your fingertips. Professional software has a complete set of tools free of Objective-C for Sybase applications and databases.

Objective DB Toolkit is designed for NeXTSTEP developers who need the power of Sybase but want the convenience of programming in SQL. The rich set of objects in both palettes allows users to develop complex applications with little knowledge of NeXT's AppKit and very little, if any, Objective-C code is required. The Toolkit is straightforward, and has a short learning curve enabling untrained (and trained) developers to design applications in the NeXTSTEP environment much faster and with greater ease.

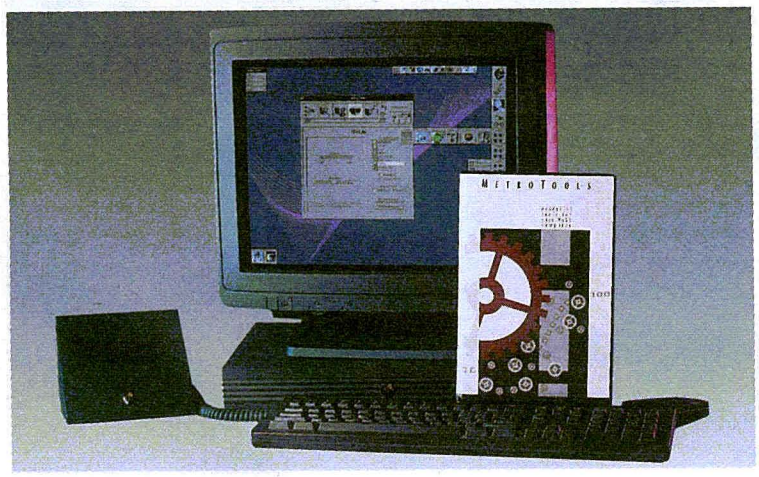
Best of all, the program's ease of use doesn't mean your options are limited. Any field value can be substituted in SQL statements. Internal variables can be used to communicate data from field to field or window to window. Exits can be cascaded in a single field. DB Toolkit is for the serious application developer who needs the power of Sybase without the pain of 3GL coding.

Get *Objective DB Designer* free with the purchase of the Toolkit. It's a database design tool specifically for the Sybase engine. The Designer no longer requires you to know or type tedious SQL statements, allowing you to build database tables using only the mouse through a highly visual and Interactive NeXTSTEP-designed interface. Includes a full report writer.

Both the Objective DB Toolkit and Objective DB Designer run on NeXTSTEP 2, NeXTSTEP 3, and NeXTSTEP 486.

Professional Software

9357 Objective DB Toolkit 2.2 **$895.**



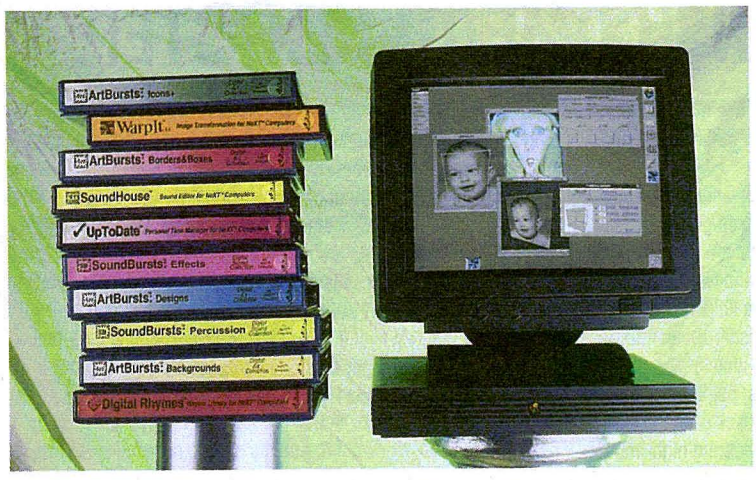
MetroTools

Save your screen, import Mac fonts, find lost files, and more. The six utilities in **MetroTools** can really enhance your NeXT productivity. Former Mac users will particularly appreciate the Font Installer which provides one-step drag-and-drop installation of both NeXT and Mac PostScript fonts and the Sound Importer which converts Mac sound files to NeXT format.

The NiteLite screen saver uses colorful animations to protect your display from burn-in and prying eyes. It offers several workspace backdrops, and runs during the login window too. The Application Launcher lets you create up to 32 groups of applications and documents that can be launched by clicking on tiles or mini-icons. The Archiver offers drag-and-drop file compression, decompression, and archiving while the File Locator offers several name-matching schemes to find misplaced files. You can also sort by date, time, owner, and size. "MetroTools has done a great job in integrating utilities that make NeXTSTEP life easier..." (*NeXTwatch*, 10/92).

Metrosoft ... 30 day MBG

8325 MetroTools 2.0 **$69.**



MIDIapolis Systems

Inexpensive and powerful. WarpIt is the Image Transformation application that lets you distort images to create new images and animation. **ArtBursts** are digital art collections like you've never seen—great for adding pizzazz to brochures and applications. **SoundBursts** are CD-quality digital sound collections you can add to presentations, voice annotations, and music scores. **SoundHouse** lets you quickly create voice annotations and music recordings. **DayTripper** is the personal and group time manager that lets you set up appointments and reminders for days, weeks, months, and more. **DigitalRhymes** is a digital library of rhymes to make songwriting less of a chore.

MIDIapolis Systems ... 30 day MBG

9736 WarpIt 1.1 **$179.**

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10014 ArtBursts: Designs **89.**
10015 ArtBursts: Icons+ **89.**
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STEP UP TO APPSOFT.

APPSOFT

Create inspiring graphics. With its easy-to-use interface and powerful drawing tools, **Appsoft Draw** is perfect for effective presentations, intelligent forms, illustrious illustrations, and multi-page documents.

The comprehensive tool palette gives you fast and interactive control of lines, arcs, rectangles, polygons, 24-bit color, TIFF and EPS images, and beziers, along with total text control including scaling and rotation.

Everything you need to combine and retouch photos. You'll feel like the reincarnation of Ansel Adams and Rembrandt with **Image.** It paints images and airbrushes too—in grayscale or true color. You can adjust contrast, color balance, clone part of an image, or airbrush out imperfections. You can even draw freehand or create a custom mask.

Image is fully WYSIWYG and lets you calibrate your screen to your output device for accurate output.

Full-featured word processing for NeXTSTEP. WriteNow keeps the writing simple and intuitive while packing enough power to create professional-looking documents.

Rulers make formatting a snap and you can incorporate all the fonts and graphics you like. There's also multi-column formatting, mail merge, spell checking, footnotes, headers and footers, search and replace, character and word counting, auto-page numbering and date insertion.

Remember, since all Appsoft programs run under NeXTSTEP, you get complete compatibility and true work group productivity.

Appsoft ... 60 day MBG

4128	WriteNow 2.1	**$159.**
4997	WriteNow 2.1 *(5 pack)*	**739.**
8685	Image 1.0	**749.**
10029	Image 1.0 *(5 pack)*	**3295.**
4465	Draw 1.02	**299.**
7028	Draw 1.02 *(5 pack)*	**1295.**

Call 800-800-NeXT to order.



Objective Technologies

Say good-bye to models with out-dated data. Objective Technologies' **OTProvide** automatically links your database with your *Improv* spreadsheet. Every time you open a spreadsheet, the latest data is imported to refresh the model. With OTProvide you can be confident that your calculations are based on the most up-to-date information. Plus you'll eliminate time-consuming data entry and avoid data entry errors.

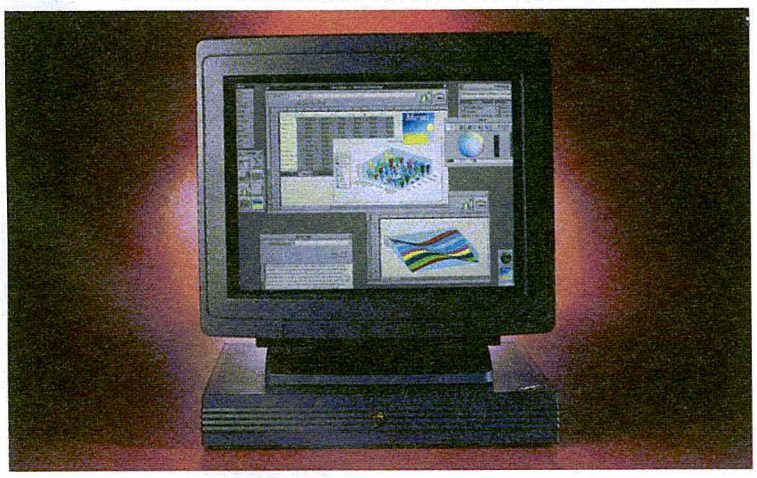
SqlBuddy, from Objective Technologies, is the database tool for professionals. It creates a friendly environment for working with relational databases. With it, you can perform database queries and commands and review the results. You don't need to know th Structured Query Language (SQL) because SqlBuddy has an easy-to-use point and click interface.

Also try Objective Technologies' developer tools designed to enhance developer efficiency and consistency: *GraphPalette* (to graph data in custom applications), *MathPalette* (to create links to *Mathematica*), *SmartFieldPalette* (to restrict and format input), and *ChooserPalette* (to manage selection lists).

Objective Technologies

3282	OTProvide 1.2	$699.
7142	SqlBuddy 1.1	399.
9344	[OT Palettes: 3.0] Graph	795.
9346	[OT Palettes: 3.0] Math	795.
9345	[OT Palettes: 3.0] SmartField	395.
9347	[OT Palettes: 3.0] Chooser	199.

All prices for 1 user floating license.

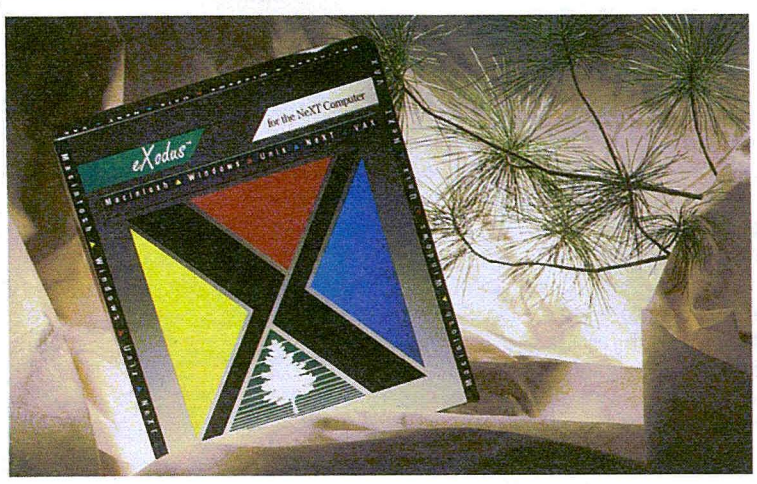


Mesa

MESA—your corporate spreadsheet solution now runs on Intel Processors too! Mesa is a traditional spreadsheet which includes functions to extract, sort and store information into SQL databases. It also acts as a report formatting tool producing professional quality reports. Mesa includes MOLI-Mesa Object Library Interface which allows custom programs to interface with spreadsheets and MScript—a powerful, easy-to-learn scripting language which harnesses the power of your spreadsheet. Mesa now has file compatibility with Excel 3.0, Lotus 1-2-3, SYLK and 20/20. Free one year upgrade path. No extra charge for upgrades to NeXTSTEP for Intel Processors.

Athena Design ... 30 day MBG

8684	Mesa 1.5	$395.



eXodus

eXodus leads the way to the promised land of X and NeXTSTEP integration. Applications using the X Window System are seamlessly integrated into NeXT's remarkable graphical user environment with eXodus. Use it to connect to X applications on any host that supports TCP/IP—Sun, HP, IBM, DEC, etc.—or run X programs installed directly on your NeXT. eXodus allows NeXTSTEP and X apps to run simultaneously, side by side, so you can maximize your NeXT investment and training while saving the cost of additional X terminals.

Version 4.0 of eXodus for the NeXT Computer is based on X11, Release 5 of the X Window System from MIT. New features include complete color support for all NeXT monitors, "rootless" windows and full compatiblity with NeXT Computer's release of NeXTSTEP 3.0. It's easy to install—no special hardware or software is required! And comes with some basic X programs to help you get started. From the same people who developed eXodus for the Macintosh.

White Pine Software

6316	eXodus 4.0	$239.



Insignia

SoftPC Professional is the a solution that lets you run mor tions on your NeXT. "SoftPC F important programs for the Ne (4/91). Now SoftPC Professio VGA, and even Super VGA gra

And now **SoftPC with Wind** the SoftPC family, includes Mi and ready to run with a set of up Windows.

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OPEN THE DOOR TO DOS.

INSIGNIA SOLUTIONS

SoftPC Professional is the award-winning software-only solution that lets you run more than 50,000 DOS applications on your NeXT. "SoftPC Ranks as one of the most important programs for the NeXT," says *NeXTWORLD* (4/91). Now SoftPC Professional supports protect mode, VGA, and even Super VGA graphics—PC CD-ROMs too!

And now **SoftPC with Windows**, the newest member of the SoftPC family, includes Microsoft Windows 3.1 installed and ready to run with a set of optimized drivers to speed up Windows.

SoftPC Professional and SoftPC with Windows come with *DOS 5.0* pre-installed. Both offer protect mode support, Super VGA, EGA, CGA graphics support, two serial ports, two parallel ports, and PC CD-ROM support. They support both extended and expanded memory configurations and can be configured for multiple hard disks. They both allow DOS access to the UNIX file system.

When it comes to performance, SoftPC and NeXTSTEP make a great team. You can run multiple DOS windows and even run NeXT and DOS software side by side. Sharing files is as easy as cutting and pasting. There's also support for EMS 4.0 expanded memory—in fact, SoftPC can access 32 MB of RAM, enough for even the most RAM-intensive applications. For optimum performance, the recommended system configurations calls for at least 16 MB RAM memory and the fastest processor available.

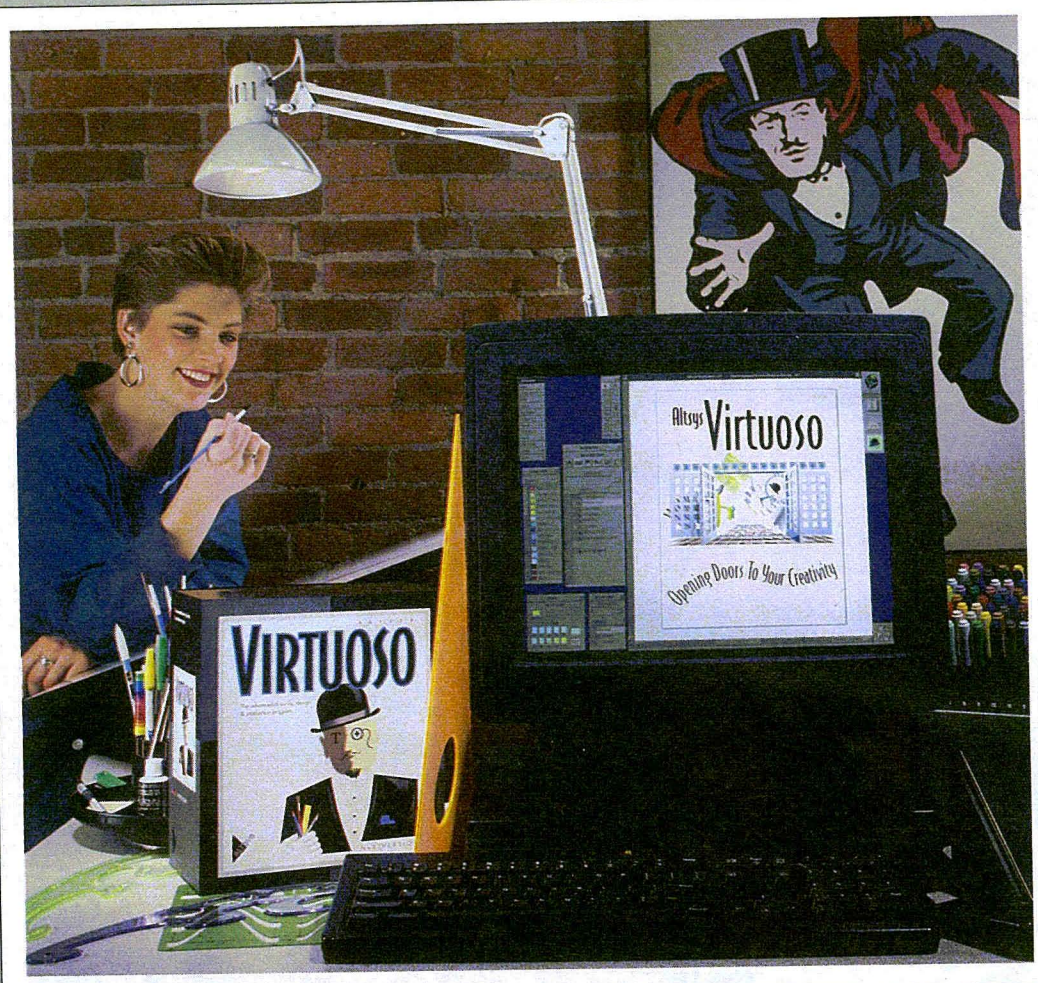
The power of the NeXT—The application library of DOS—That's SoftPC.

Insignia Solutions

1456 SoftPC Professional..... **expires 5/31/93 $329.**
10010 SoftPC with Windows..... **expires 5/31/93 439.**

Call 800-800-NeXT to order.

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VIRTUOSO

Get professional drawing results with tools from the drawing professionals with the advanced PostScript drawing design and production program, Virtuoso. As the developer of award-winning graphics programs such as *Fontographer* and *Aldus FreeHand*, Altsys knows what you need most from a drawing program. Altsys has taken their knowledge and experience and combined it with the power of the NeXT to bring you Virtuoso.

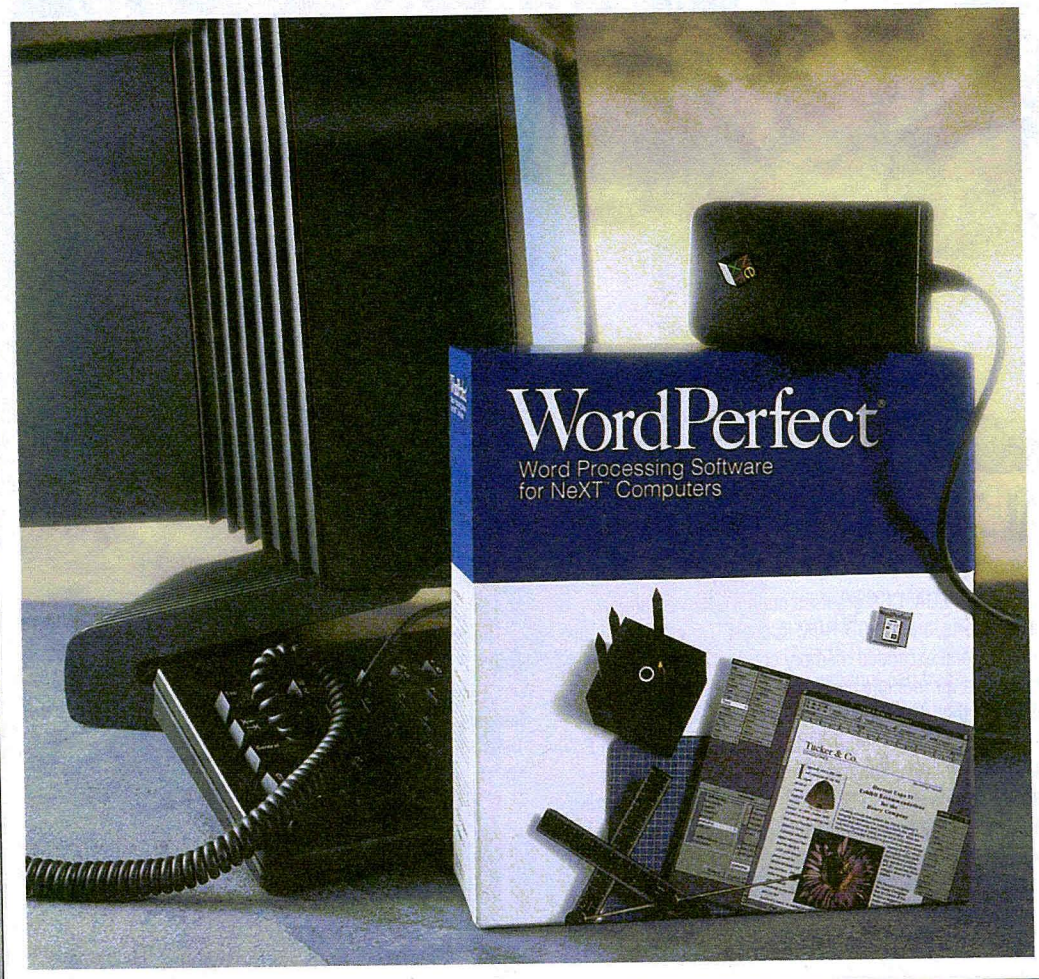
You can create artwork free-style with the Freehand drawing tool or import it form the extensive, professional clip-art library. Draw basic shapes and lines with the rectangle, oval, and straight line tool, or get fancy with the Multigon and Pen tools. Rotate, reflect, scale, and skew objects quickly and easily. Autotrace scanned images with superb control.

Virtuoso also gives you the editing, coloring, and organization tools you need to create your designs. Undo or redo—not just the last few actions, but up to 100 levels. Zoom in or out—not just 100% or 200%, but up to 1600%. Choose spot process colors from the NeXT Color Panel, then drag and drop them into objects. Automatically create percentages of any color with the Tint Panel. Maintain your work in an unlimited number of nameable, reorderable layers—each one separately hideable and lockable.

Wonderfully flexible PostScript support, meticulously accurate alignment control, superb text editing and typographic control, varied import and export capabilities, comprehensive built-in production tools (including color separations, spot-to-process conversions, and on-screen previews)—all this is just the beginning of the list of innovative and productive features in Virtuoso, each designed to simplify your work and stimulate your creativity.

Altsys Corporation

6931	Virtuoso 1.0	**expires 5/31/93**	**$229.**
8683	Virtuoso 1.0 *(5 pack)*	**expires 5/31/93**	**895.**



WORDPERFECT

WordPerfect unleashed! Full-time WYSIWYG and effortless multitasking. There are a whole lot of DOS users of **WordPerfect** out there who are struggling with whether they should start using their favorite application under Windows or on the Mac. Well, the answer is neither. If you want to realize WordPerfect's full word-processing potential, the solution is NeXT.

NeXT's unified PostScript imaging system puts the WordPerfect Preview mode to rest once and for all. Every element, including fonts of all sizes, headers, footer, footnotes, graphics, and columns, always appear just as they will print. And NeXT features like built-in multitasking and fax capability make WordPerfect the ultimate power tool for working with words.

But, of course, not *just* words. WordPerfect easily integrates text and graphics. Just grab your image file with the mouse and drop it on the page wherever you want (inserted in a line of text, tied to a paragraph, or even placed in a header or footer). You can scale, move, and rotate your images every which way, and add captions and borders with ease. Each time the type will automatically rearrange itself.

Naturally, you get all the basic word-processing power features WordPerfect is famous for: parallel and newspaper columns, powerful macros, mail merge, table of contents, indexing, footnotes/endnotes, a 115,000-word spell checker, thesaurus, and automatic timed backup. Any questions? Ask the Digital Librarian or consult the online reference manual. This is truly full-featured word processing for NeXT.

WordPerfect

8818	WordPerfect 1.0.1	**$299.**
1576	WordPerfect Additional Station	**169.**

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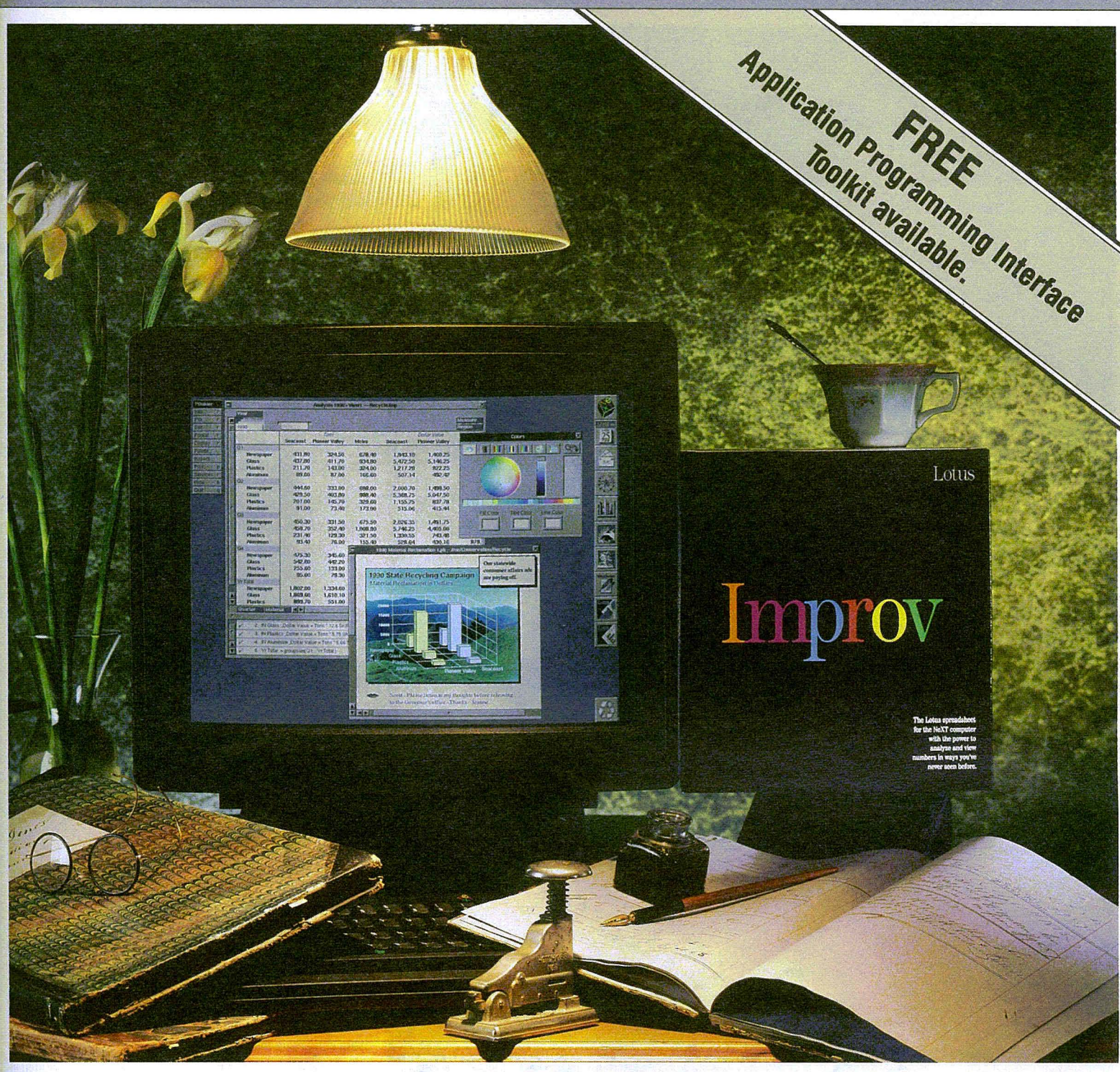
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LOTUS REINVENTS THE SPREADSHEET.

IMPROV

Look at your data in a whole new light. What happens when you give the creators of the world's best-selling spreadsheet an 040 processor and 8 MB of RAM and let them improvise to their heart's content? You get Lotus Improv, a revolutionary spreadsheet for analyzing, viewing, and presenting your data in ways never before possible.

Improv's unique dynamic view feature lets you see the same data in multiple ways to explore data relationships and prepare targeted reports. Just use the mouse to rearrange your spreadsheet and get a whole new view instantly, without any re-keying. You can actually work with 12 different catagories of data at once, displayed in 2D or 3D format.

Improv lets you use plain English to define cells and create formulas (e.g., "Dollars = Tons x 12.5"). So your spreadsheets document themselves and are easy to modify and re-use. For complex formulas, you can call on a host of built-in *Lotus 1-2-3* style functions. All of which makes it easy to build spreadsheets from scratch. You can also use the extensive collection of prepackaged templates and/or import existing *1-2-3* files directly.

Improv lets you combine graphs, texts, images, and even sound with stunning clarity and resolution that take full advantage of NeXT. But how good is it , really? *Byte* (10/90) wrote, "Improv knocked me out." *PC World* (11/90) called it "a stunningly simple approach to organizing complex data."

What Micro? Magazine (UK, 4/91) awarded it "Most Innovative Product 1990." And *InfoWorld* (10/91) wrote, "Improv is an exciting alternative to traditional spreadsheet programs...it's one of the most innovative programs we've seen in some time."

Lotus Development
9794 Improv 1.0..... **$499.**

Call 800-800-NeXT to order.



ELECTROFILE

Electronic filing arrives. Introducing a real solution for document management that gives you the power to locate any type of file—text, TIFF, EPS, etc.—quickly and easily. No matter how many files your library contains.

ElectroFile from Insight Software allows you to build your own classification scheme, based upon your own requirements. Because documents can be indexed and classified in numerous ways, they become much easier to locate—even those without text. ElectroFile's retrieval engine is based upon B*Tree indexes which generate fast searches, regardless of the number of documents in the library. You can design complex search paradigms with just a few keystrokes, thereby reducing thousands of possibilities down to the right one. Once you find the file you're looking for, just click "show" and ElectroFile will display an image of the original document alongside the classification interface. Then you can make corrections, attach other files, add notes or important text, and even record voice messages on the document.

And now ElectroFile is compatible with a variety of high-speed scanners and optical character recognition (OCR) systems. So you really can use it as a paperless filing cabinet. Just scan images and documents directly onto your hard drive via ElectroFile and forget about hard copies altogether!

Designed to be both powerful and flexible, ElectroFile is ideal for imaging, cataloging, customer support, account processing, or any activity which can take advantage of cross-indexing. After all, if you own a NeXT computer you're already halfway to having the world's most sophisticated filing system right there on your desk—now, with ElectroFile, you can go all the way.

Insight Software ... 30 day MBG
3308 ElectroFile 2.0 **$395.**



WINGZ

It takes spreadsheet power to new heights. Wingz is *the* easy-to-use, high-performance graphic spreadsheet for business and technical professionals. You can combine numbers, words, charts, and graphics in one window and print to one page—all with one product. The Wingz worksheet is 32,768 rows by 32,768 columns (more than a billion cells) and includes over 140 built-in functions, 2D and 3D charts, and support for as many colors as your system can display.

Wingz includes HyperScript, an English-like event-driven development environment, and DataLink, an SQL database access tool. HyperScript was written specifically for graphical application development and allows you to place functional buttons, scrolling lists, and other controls right on the worksheet. And with its built-in LEARN mode, even novice users can create their own applications or customize the Wingz environment quickly and easily. DataLink, which was written in HyperScript, gives you point-and-click access to data in Informix SQL databases without having to know SQL. Just point and click at the data you need—you never have to leave Wingz' friendly graphical environment. DataLink also includes a function library so you can build custom front-end applications for your SQL database and Executive Information Systems (EIS).

Other features include powerful text capabilities—including fields for free-floating text on the worksheet, with multiple text-processing options and attribute settings—and the ability to import/export Wingz graphics as EPS images.

Minimize your reliance on MIS and create your own applications and reports with Wingz!

Informix Software
3332 Wingz 1.1AB **$469.**



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The ideal document publisher for corporate workgroups. Imagine WYSIWYG word processing, page layout, graphics, tables, and even equations in one program. That's **FrameMaker**—all the writing and graphic tools you need for long, structured documents like textbooks, software documentation, policy manuals, and proposals. And it was specifically designed to be used by multiple authors working together across multiple platforms. In fact it offers 100% compatibility between 25 different UNIX platforms and the Macintosh (and even won a 1991 *MacUser* Eddy Award).

The sophisticated page-layout features include the ability to create up to 25 master pages (i.e., page formats) per document. So you can ensure consistency as new files are incorporated and documents are revised, edited, and rearranged. You can also create extensive tables of contents, lists of tables, indexes, and cross references that will automatically update whenever your document changes.

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The word processing capabilities rival those of dedicated word processors. There's a 130,000-word spelling and hyphenation dictionary; search and replace; automatic page, paragraph, and footnote numbering; and a complete equation palette with over 250 symbols, delimiters, and operators.

You can also create complex multi-page tables—complete with graphics and equations that include multiple styles in a single cell. And there's an ingenious conditional text feature that lets you develop multiple variations of a document from a single source file by simply tagging the variable text or graphics.

As *NeXTWORLD* (Fall '91) wrote: "If your work calls for long documents with large page counts, multiple chapters, tables, lists, illustrations, and indexes, then you won't believe your luck...FrameMaker is as good as they come."

Frame Technology
8241 FrameMaker 3.0..... **$549.**

Call 800-800-NeXT to order.

NeXTConnection™



MicroPhone Pro

Great communications software has arrived. With **MicroPhone Pro**, you'll have easy, intuitive communications software that takes full advantage of NeXT capabilities.

Watch in amazement or, better yet, do something else entirely, while MicroPhone Pro dials your mail service and automatically downloads your messages in the background.

Next time you log onto your favorite service, turn on the *Watch Me* feature and your keystrokes will be saved. Give the resulting script a button and you're never more than a click away. If you've written MicroPhone scripts in Windows or on the Mac, you'll discover you can use them on the NeXT with little or no modification.

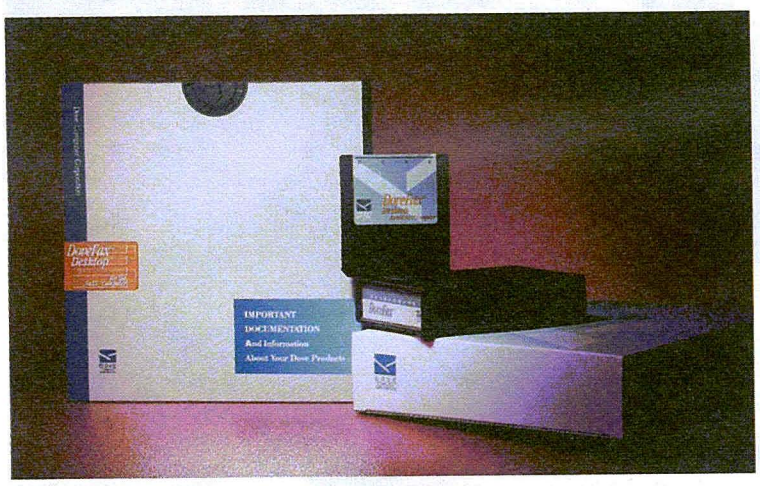
And wait until you see Loran, a new MicroPhone Pro document that includes front ends to CompuServe Mail and Software Ventures' own BBS. Even though you send and receive mail from entirely different systems, the Loran interface you use is the same, saving you time and effort. Eventually, Loran will hold additional front ends for news, messaging and other services, making it a true information valet. You can also build your own NeXT front end with MicroPhone Pro's enhanced scripting power and NeXT's Interface Builder.

It's so easy to be online with MicroPhone Pro that you'll soon be doubling your pleasure and your productivity—thanks to multi-session capability that allows you to log onto several information services simultaneously. Safely send or receive anything—text, pictures, or sound—through a comprehensive set of file transfer protocols such as ASCII, XMODEM, YMODEM, ZMODEM, and KERMIT.

Insanely great software for an insanely great computer.

Software Ventures ... 30 day MBG

4759 MicroPhone Pro 1.0..... **expires 5/31/93** **$99.**



DoveFax Pro

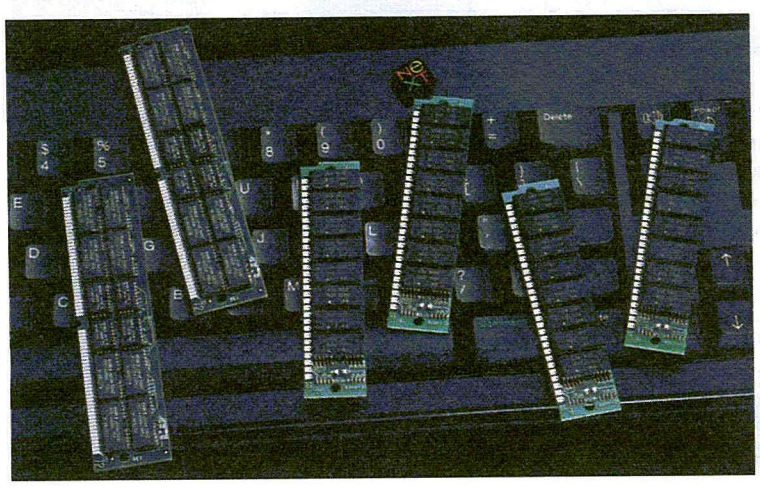
A fax and modem combined. The **DoveFax Desktop for NeXT** features a 9600 bps CCITT Group-3-compatible fax that makes full use of the intuitive NeXT fax interface so you can send any kind of document directly from your NeXT. DoveFax features true background operation, an on line telephone directory, automatic answering, fax preview, and customized cover pages. You can send faxes at high resolution and print incoming faxes at your choice of 200 x 200 dpi or 200 x 100 dpi Display PostScript.

DoveFax Desktop also includes a Hayes-compatible 2400 bps modem that supports a complete range of communications services, protocols, applications, and electronic bulletin boards. The **DoveFax 14.4 Pro** handles everything the DoveFax can, but has a 14,400 bps data modem with V.32, V.42/V.42bis advanced data compression and error correction for throughput up to 57,600 bps. You can also send faxes at 14,400 bps (downward compatible to 9600 bps). Both modems are backed by Dove's solid customer support and 1-year warranty.

Dove Computer ... 1 year warranty

9356 DoveFax Desktop..... **$295.**

7154 DoveFax 14.4 Pro..... **$425.**



Memory

Running out of RAM? We can help you get back to full power overnight. Just call as soon as you start running out of room and we'll send more memory by Airborne Express for delivery the next business day. Our **4 MB** and **16 MB Memory Upgrade Kits** feature low profile, non-parity, 80ns SIMMs that are compatible with the 68030 and 68040 Cube and the 040 workstation (monochrome only). We also carry **8 MB Memory Upgrade Kits** for NeXTstation Color and NeXTdimension boards. (The latter requires 2 Kits/16 MB at a time.) And Installation? For the workstation we recommend an authorized dealer—otherwise you risk voiding the warranty. But you can go ahead and install them yourself in the cube—we'll provide toll-free tech support.

Memory ... 2 year warranty

8910 4 MB SIMM *(80ns)*..... **call**

1935 8 MB Memory Upgrade Kit *(for NeXTstation Color, NeXTdimension, and NeXTstation Turbo; two 4 MB x 8 SIMMs, 70ns)*..... **call**

8911 16 MB Memory Upgrade Kit *(four 4 MB x 8 SIMMs, 80ns)*..... **call**

8324 16 MB Memory Upgrd. Kit *(mono & color turbo stations; two 8 MB x 8 SIMMs, 70ns)*. **call**

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HA

Integrated voice and data
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NeXTSTEP 3.0 and all the ne
out for high-speed, digitizec
media as well as remote LAI
munications network interfa
provides both ISDN Basic Ra
connectivity to NeXT compu
powerful connectivity to NeX
modular connector for an IS
RJ11 connector for an analo

The Extender supports bot
switches and fully implemen
Command Set (so you can u
and the Hayes AutoStream p
software, opens the door to

Data transmission options
bps and voice capabilities inc
interface along with battery f
typical analog devices (e.g., p

If you're not using NeXTSTEI
connectivity to a Sun or othe
Hayes ISDN System Adapter,
(with a switch-selectable V.3
with its own Digital Signal Pr
processor, and power supply

Hayes ... 2 year warranty
1013 ISDN Extender
4998 ISDN System Adapter (

Toshiba announces dramatic
2.88 MB ED disks, NeXT's cho
NeXT systems. Toshiba's new
to or less than conventional 1.
the only media manufacturer v
quality 2.88 MB disks, NeXT c
system. Now more than ever T

Toshiba ... lifetime warrant
4858 Toshiba 3.5" ED Floppy
9755 Toshiba 3.5" ED Floppy

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diskettes, tabs, name badges, r

ITEM NO.	AVERY NO.	DESCRIPTIC
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4807	5160	1" x 2⅝" White A
4808	5162	1⅓" x 4" Laser L
4810	5165	8½" x 11" Full Sl
4811	5182	8½" x 11" Laser
5392	5196	3.5" Disk Labels

SIMSON00001641

SIMSON0000164 2

HAYES ISDN

Integrated voice and data technology has arrived. And NeXT computers are the perfect platform for this exciting breakthrough.

The new **Hayes ISDN Extender** is designed to work with NeXTSTEP 3.0 and all the new ISDN applications that are coming out for high-speed, digitized voice, data, fax modem, and multimedia as well as remote LAN connections. It's the first telecommunications network interface module for NeXT computers that provides both ISDN Basic Rate Access and analog telephone line connectivity to NeXT computers, thereby providing low-cost, powerful connectivity to NeXT users worldwide. There's an 8-pin modular connector for an ISDN Basic Rate Line and a 6-pin RJ11 connector for an analog phone line.

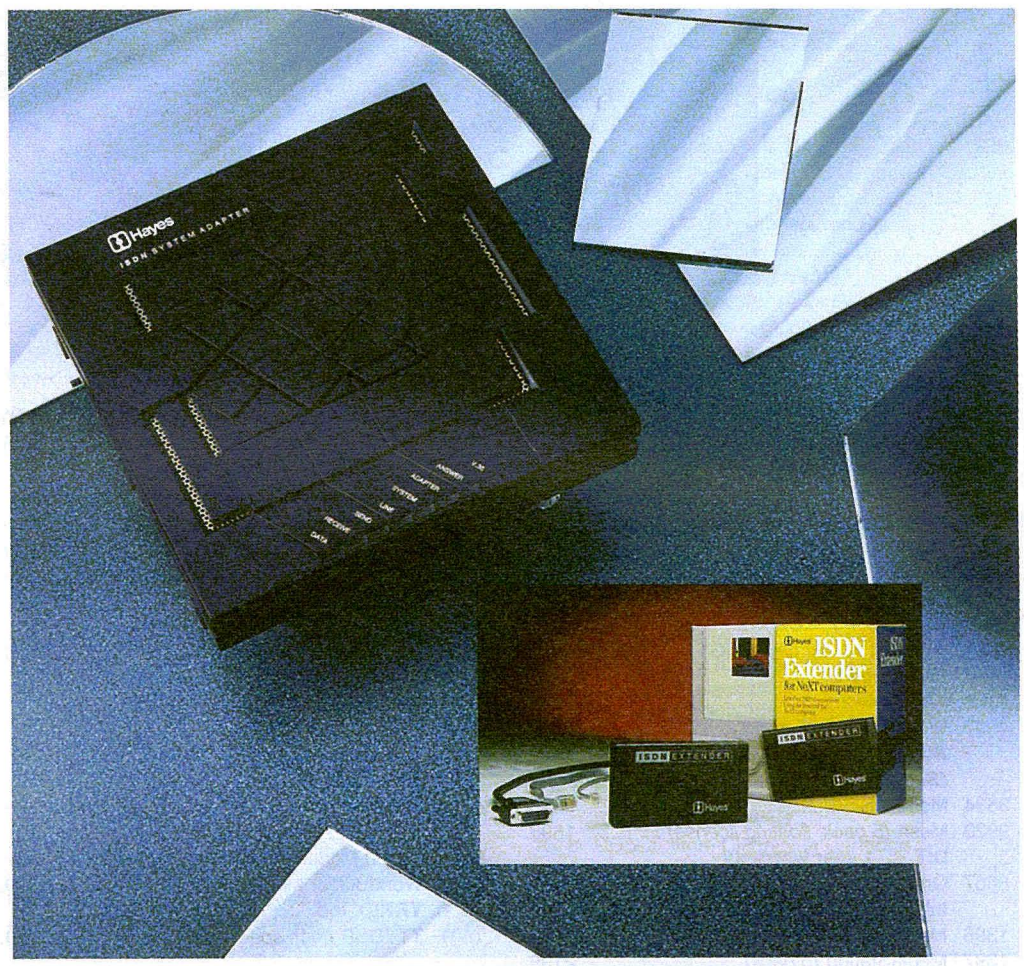
The Extender supports both AT&T and Northern Telecom ISDN switches and fully implements both the Hayes Standard AT Command Set (so you can use those familiar Hayes commands) and the Hayes AutoStream protocol which, with supported software, opens the door to multiple voice/data sessions.

Data transmission options range from 300 bps to 38,400 bps and voice capabilities include the standard analog phone interface along with battery feed and ring voltage for up to three typical analog devices (e.g., phone, fax, and answering machine).

If you're not using NeXTSTEP 3.0 or you need to bring ISDN connectivity to a Sun or other workstation you'll want the **Hayes ISDN System Adapter**, an external RS-232 serial device (with a switch-selectable V.35 interface) that comes complete with its own Digital Signal Processor (DSP), codec, high-speed processor, and power supply.

Hayes ... 2 year warranty

1013	ISDN Extender	$279.
4998	ISDN System Adapter *(requires cable)*	749.

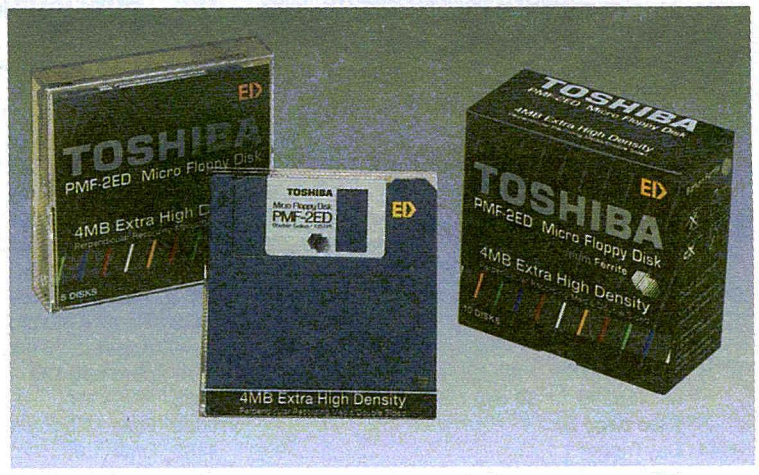


TOSHIBA DISKS

Toshiba announces dramatic price reduction on Toshiba 2.88 MB ED disks. Now Toshiba 2.88 MB ED disks, NeXT's choice in ED disks, are also the best *value* in diskette storage for NeXT systems. Toshiba's new pricing makes the cost per megabyte of Toshiba ED disks equal to or less than conventional 1.44 MB HD disks. Because Toshiba invented ED technology and is the only media manufacturer with the experience and the expertise required to make superior quality 2.88 MB disks, NeXT chose Toshiba's 2.88 MB floppy disks to include with each NeXT system. Now more than ever Toshiba's 2.88 MB disks are your best choice as well.

Toshiba ... lifetime warranty

4858	Toshiba 3.5" ED Floppy Disk *(5 Pack)*	$17.
9755	Toshiba 3.5" ED Floppy Disks *(10 Pack)*	29.



AVERY

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7050	5660	1" x 2⅝" Clear Address	32.	3653	5389	4" x 6" Laser Post Cards	15.
4807	5160	1" x 2⅝" White Address	24.	1428	5266	⅔" x 3 7/16" File Folder	14.
4808	5162	1⅓" x 4" Laser Labels	24.	4323	5395	2⅓" x 3⅜" Name Badge	31.
4810	5165	8½" x 11" Full Sheet Laser	24.	1618	5971	1" x 2⅝" Fluorescent Green	12.
4811	5182	8½" x 11" Laser Trans.	22.	1630	5972	1" x 2⅝" Fluorescent Yellow	12.
5392	5196	3.5" Disk Labels	29.	8771	5199	Video Tape Labels	31.



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Yes, we gladly accept P.O.s. Always have, always will. In fact, we do everything possible to make corporate mail-order purchasing of computer software and peripherals as easy and enjoyable a process as possible—within the realm of common decency, of course. Many companies (including most of the Fortune 1000 and other just-as-fortunate smaller ones) have accounts with us. If you'd like to open one (or check whether your company already has one), simply call our order line at 800-800-NeXT.

PRODUCT INDEX

GENERAL BUSINESS & PRODUCTIVITY

Adamation ... 30 day MBG
3357 Who's Calling? 2.5 ... $295.
3335 Who's Calling? 2.5 *(4 pack)* ... 1349.
6817 What's Happening? 2.5 ... 219.
3334 LiveWire 1.0 *(4 pack)* ... 599.

Appsoft ... 60 day MBG ***(See page E)***
4128 WriteNow 2.1 ... 159.
4997 WriteNow 2.1 *(5 pack)* ... 739.

Athena Design ... 30 day MBG ***(See page F)***
8684 Mesa 1.5 ... 395.
9920 Mesa *(5 pack, floating license)* ... 1695.

DIT ... 1 year warranty
8657 OnDuty 1.0 ... 279.

Imagine Multimedia, Inc.
1396 MediaStation 2.1 ... 495.
1397 MediaStation *(5 pack)* ... 2199.
1398 MediaStation *(20 pack)* ... 5499.

Information Technology ... 60 day MBG
3710 SpeedDex 1.0 ... 79.

Informix Software ***(See page J)***
3332 Wingz 1.1AB ... 469.

Insight Software ... 30 day MBG ***(See page J)***
3308 ElectroFile 2.0 ... 395.

Lighthouse Design, Ltd. ... 60 day MBG ***(See page C)***
2409 Concurrence 1.1 ... 795.

Lotus Development ***(See page I)***
9794 Improv 1.0 ... 499.

MIDIapolis ... 30 day MBG ***(See page D)***
10044 DayTripper 1.1 ... 99.

Stone Design ... 30 day MBG ***(See page A)***
1637 Dataphile 1.1 ... 529.

Teledia
4726 FileMaster 1.0 ... 299.

WordPerfect ***(See page H)***
8818 WordPerfect 1.0.1 ... 299.
1576 WordPerfect Additional Station ... 169.

COMMUNICATIONS & DATA TRANSFER

Abacus Research & Develop. ... 60 day MBG
1518 Executor 1.2.1 ... 295.

DataViz ... 60 day MBG
1823 MacLinkPlus/PC 7.0 ... 129.

DIT ... 1 year warranty
8656 FloppyWorks 2.2L ... 69.

Dove Computer ... 1 year warranty ***(See page L)***
9356 DoveFax Desktop *(incl. 2400 modem)* .. $295.
7154 DoveFax 14.4 Pro ... 425.

Hayes ... 2 year warranty ***(See page M)***
5024 Ultra 14.4 Modem *(requires cable)* ... 669.
1013 ISDN Extender ... 279.
4998 ISDN System Adapter *(requires cable)* ... 749.

Insignia Solutions ***(See page G)***
1456 SoftPC Professional ... *expires 5/31/93* 329.
10010 SoftPC with Windows ... *expires 5/31/93* 439.

Marble Associates
1012 Teleconnect 1.1 ... 249.

Software Ventures ... 30 day MBG ***(See page L)***
4759 MicroPhone Pro 1.0 ... *expires 5/31/93* 99.

Telebit ... 1 year warranty
5080 T3000 Modem *(requires cable)* ... 669.
8165 WorldBlazer Modem *(requires cable)* ... 769.

YRRID, Inc. ... 120 day warranty
7601 TTYDSP *(high speed serial port)* ... 159.

PUBLISHING & GRAPHICS

Adobe Systems
1827 Adobe Illustrator 3.0.1 ... 459.
9765 Adobe Plus Pack 1.0 ... 129.
9741 Adobe TouchType 2.1.1 ... 175.
1832 Adobe TypeSet 1 ... 65.
1833 Adobe TypeSet 2 ... 65.
1834 Adobe TypeSet 3 ... 129.

Altsys Corporation ***(See page H)***
6931 Virtuoso 1.0 ... *expires 5/31/93* 229.
8683 Virtuoso 1.0 *(5 pack)* ... *expires 5/31/93* 895.

Appsoft ... 60 day MBG ***(See page E)***
8685 Image 1.0 ... 749.
10029 Image 1.0 *(5 pack)* ... 3295.
4465 Draw 1.02 ... 299.
7028 Draw 1.02 *(5 pack)* ... 1295.

Frame Technology ***(See page K)***
8241 FrameMaker 3.0 ... 549.

Lighthouse Design, Ltd. ... 60 day MBG ***(See page B)***
8686 Diagram! 2.0 *(requires NeXTSTEP 3.0)* . 395.

MIDIapolis ... 30 day MBG ***(See page D)***
10016 ArtBursts: ArtPak ... 269.
10012 ArtBursts: Backgrounds ... 89.
10013 ArtBursts: Borders & Boxes ... 89.
10014 ArtBursts: Designs ... 89.
10015 ArtBursts: Icons+ ... 89.
9736 WarpIt 1.1 ... 179.

MicroMaps ... 30 day MBG
9276 MapArt 1.0 ... 95.

Rightbrain Software ... 30 day MBG
6809 PasteUp ... 595.

Stone Design ... 30 day MBG ***(See page A)***
1066 Create 1.1 ... $395.
8658 TextArt 1.0 ... 229.

Vivid Publishing ... 30 day MBG
4496 TypeView 1.0 ... 99.

RECREATIONAL

Lighthouse Design, Ltd. ... 60 day MBG
3315 Void 2.0 *(3 user license)* ... 99.

VIDEO & SOUND

Metaresearch ... 1 year warranty
9682 Digital Ears ... 499.
9683 Digital Ears *(with SoundWorks)* ... 549.
9681 Monochrome Digital Eye ... 829.
4848 Color Digital Eye ... 799.
9680 SoundWorks 2.0 ... 269.

MIDIapolis ... 30 day MBG ***(See page D)***
7141 SoundHouse ... 59.
5972 SoundBursts *(effects)* ... 89.
6025 SoundBursts *(percussion)* ... 89.
10045 SoundPak ... 179.
10011 DigitalRhymes ... 99.

UTILITIES

Agog, Inc. ... 30 day MBG
1476 Squash! 1.0 ... 79. 1478 *(10 pak)* ... 699.

CuillaMartin ... 30 day MBG
6225 Calculator Set *(single)* ... 59.
6226 Calculator Set *(10 pak)* ... 479.

MetroSoft ... 30 day MBG ***(See page D)***
8325 MetroTools 2.0 ... 69.

Rightbrain Software ... 30 day MBG
4148 LockScreen 3.2 ... 79.
4493 LaunchPad ... 79.
4498 Portfolio ... 79.
4494 Rulers ... 79.
3728 Bundle *(All four listed above)* ... 199.

Skylee Press
8663 Big Green Disk *(optical disk only)* ... 299.
8716 Big Green CD *(requires NeXTSTEP 3.0)* . 79.

Teledia
2514 Phrase Player 2.0 ... 129.
2513 Backup Master ... 249.
7144 Backup Master *(floppy only)* ... 79.

T/Maker
1185 ClickArt ... 195.

PROGRAMMING & MATH TOOLS

Absoft
8898 Fortran 77 3.1 ... 839.
6745 FX Debugger ... 595.

Digital Toolworks
10828 Equation Builder ... 199.

Objective Tech ***(See page F)***
9347 [OT Palettes: 3.0
9346 [OT Palettes: 3.0
9345 [OT Palettes: 3.0
9344 [OT Palettes: 3.0
3282 OT Provide 1.2..
7142 SqlBuddy 1.1 ...

ONyX Systems
2340 BugByte 2.1 ...

Professional Sc ***(See page D)***
9357 Objective DB To

RDR, Inc.
10792 ImageView ...
10790 Gadgets ...
10789 Selector ...
10791 SwitchView ...

Triakis ... 30 da
1963 T-Calc 1.0 ...
1965 Math++ 3.0 ...
1966 DAN, the Data Al

White Pine Softv ***(See page F)***
6316 eXodus 4.0 ...

Wolfram Resear
2516 Mathematica 2.1

INPUT

American Power
7105 Smart-UPS 600 ..
9365 Smart-UPS 900 ..
9364 Smart-UPS 1250
7107 Back-UPS 450 ...

CH Products ...
6814 TrackBall ...

Second Glance S
5973 Scantastic *(Epson*
7156 Scantastic *(HP Sc*

Tripp Lite ... 2 ye
1528 600VA On-Line UI
1511 800VA On-Line UI

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- C.O.D. maximum is $10
- 120-day limited warranty
- Defective software repla replaced at our discretio promotions are subject t
- Order lines: Open continu Business offices: Call 603-

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NeXTConnection™

Objective Technologies
(See page F)

9347	[OT Palettes: 3.0] Chooser	$199.
9346	[OT Palettes: 3.0] Math	795.
9345	[OT Palettes: 3.0] SmartField	395.
9344	[OT Palettes: 3.0] Graph	795.
3282	OT Provide 1.2	699.
7142	SqlBuddy 1.1	399.

ONyX Systems ... 30 day MBG

2340	BugByte 2.1	119.

Professional Software
(See page D)

9357	Objective DB Toolkit 2.2	895.

RDR, Inc.

10792	ImageView	99.
10790	Gadgets	99.
10789	Selector	149.
10791	SwitchView	109.

Triakis ... 30 day MBG

1963	T-Calc 1.0	59.
1965	Math++ 3.0	199.
1966	DAN, the Data ANalyzer 2.1.0	269.

White Pine Software
(See page F)

6316	eXodus 4.0	239.

Wolfram Research ... 30 day MBG

2516	Mathematica 2.1	1699.

INPUT/OUTPUT

American Power ... 2 year warranty

7105	Smart-UPS 600	439.
9365	Smart-UPS 900	649.
9364	Smart-UPS 1250	869.
7107	Back-UPS 450	215.

CH Products ... 30 day MBG

6814	TrackBall	119.

Second Glance Software

5973	Scantastic *(Epson ES-300C)*	299.
7156	Scantastic *(HP ScanJet IIc)*	299.

Tripp Lite ... 2 year warranty

1528	600VA On-Line UPS	559.
1511	800VA On-Line UPS	699.

DRIVES & CABLES

All drives require a SCSI cable.

Cables ... lifetime warranty

8906	SCSI 2-50 pin Centronics *(4 ft.)*	$35.
8909	50 pin-50 pin Centronics	15.
10285	50 pin-50 pin Centronics *(gray, 3 feet)*	25.
4964	50 pin-50 pin Centronics *(gray, 6 feet)*	29.
6744	SCSI Terminator *(block type)*	15.
8991	68040 Modem Cable *(8 ft.)*	15.
1540	Mini DIN 8 to Mini DIN 8 Null Modem Cable	15.
1441	Mini DIN 8 to DB25 Null Modem Cable	15.
3466	BNC Connector *(50 ohm)*	3.99
3458	BNC T-Connector	8.99
3465	BNC Terminator without Ground	5.99
5722	BNC Terminator with Ground	6.
3456	25' Ethernet Cable *(w/BNC Connectors)*	25.
3432	50' Ethernet Cable *(w/BNC Connectors)*	39.
3437	100' Ethernet Cable *(w/BNC Connectors)*	59.

IOMEGA ... 1 year warranty

2530	Bernoulli 90 MB Cartridge	149.
2467	Bernoulli 90 MB Cartridge Tri-Pack	439.
6499	Bernoulli Transportable 90 PRO	659.
10452	Bernoulli Transportable 150 PRO	849.
7151	NeXT Interface Kit	65.
2481	NeXT Care Kit	35.

MDS Drives ... 2 year warranty

6804	MDS 88 Removable Drive	579.
3603	MDS 88 Removable Cartridge	100.

Micropolis ... 5 year warranty

8984	280 MB MICRODISK *(formatted)*	1589.
4415	550 MB MICRODISK *(formatted)*	1699.
4412	860 MB MICRODISK *(formatted)*	1999.
6808	1.1 GB MICRODISK *(formatted)*	2299.
8979	280 MB Internal Hard Drive *(15 ms)*	1149.
8978	550 MB Internal Hard Drive *(15 ms)*	1299.
5029	860 MB Internal Hard Drive *(14.5 ms)*	1699.

Peripheral Land, Inc. ... 1 year warranty

8887	CD-ROM Caddy *(single)*	14.
2531	CD-ROM Caddy *(10 pack)*	99.
2326	CD-ROM Drive *(beige)*	589.
8547	Super Floppy 2.88 Drive	449.
8894	Infinity 40 Twin	1095.

ACCESSORIES

Avery ... 60 day MBG
(See page M)

5392	3½" Diskette Labels *(Qty. 630)*	$29.
1430	1" x 4" Address Labels	24.
4808	1⅓" x 4" Laser Labels	24.
4811	8½" x 11" Laser Transparencies	22.
5392	3.5" Disk Labels	29.

Canon ... 90 day warranty

5488	Black Cartridge *(for Color Printer)*	19.
5461	Cyan Cartridge *(for Color Printer)*	29.
5464	Magenta Cartridge *(for Color Printer)*	29.
5480	Yellow Cartridge *(for Color Printer)*	29.

Hewlett-Packard ... 120 day warranty

8099	Toner Cartridge for NeXT Printer	93.

Memory ... 2 year warranty
(See page L)

8790	1 MB SIMM *(80ns)* or 9284 *(set of 4)*	call
8910	4 MB Memory SIMM *(80ns)*	call
1935	8 MB Memory Upgrade Kit *(for NeXTdimension, NeXTstation Color & NeXTstation Turbo)*	call
8911	16 MB Memory Upgrade Kit *(four 4 MB)*	call
8324	16 MB Memory Upgrade Kit *(four 8 MB)*	call

Moustrak ... lifetime warranty

8576	Mouspad: black *(7" x 9")*	8.
8548	Mouspad: black *(9" x 11")*	9.
10313	Mouspad: L/F black *(9" x 11")*	10

Pacific Micro ... 1 year warranty

8244	External Hard Drive Enclosure	375.

Sony ... 60 day MBG

1578	DG5CL 4mm Cleanining Cartridge	13.
1603	DG60M *(60 meter DAT Tape)*	15.
2520	DG90M *(90 meter DAT Tape)*	19.

SyQuest ... 60 day MBG

5912	SyQuest Cartridge *(44 MB)*	65.
3603	SyQuest Cartridge *(88 MB)*	100.
5531	SyQuest Cartridge *(88 MB) (3 pak)*	292.
5530	*(5 pak)* 480. 3600 *(10 pak)*	950.

Toshiba ... lifetime warranty
(See page M)

4858	3.5"ED Floppy Disk *(5 pack)*	17.
9755	3.5"ED Floppy Disk *(10 pack)*	29.

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- Corporate P.O.s are accepted subject to credit approval.
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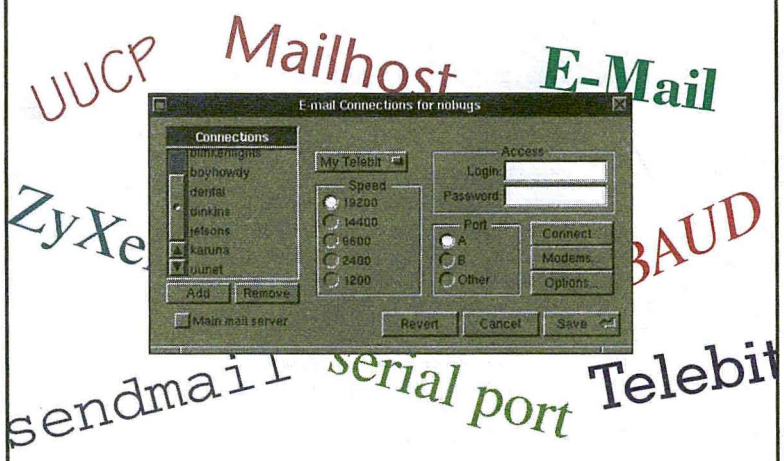
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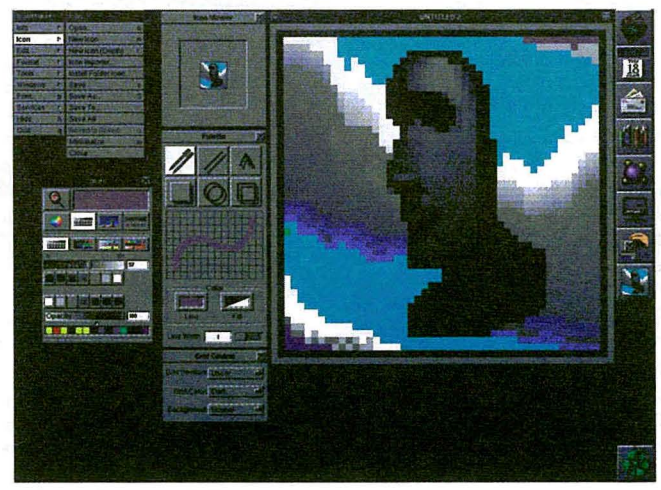


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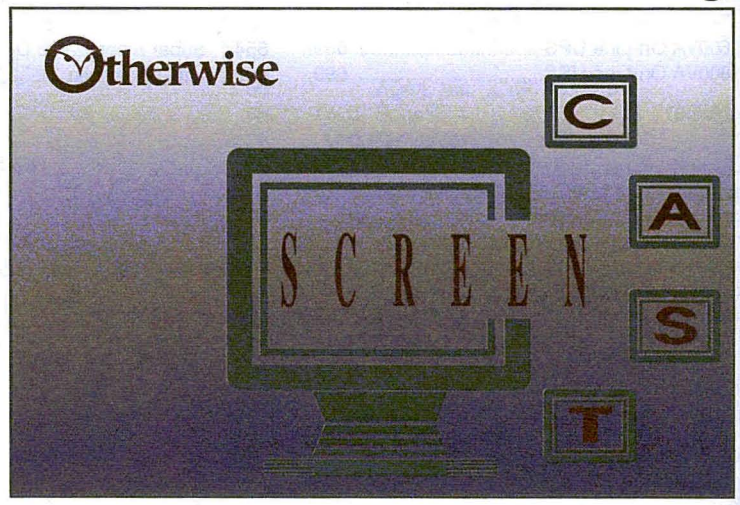
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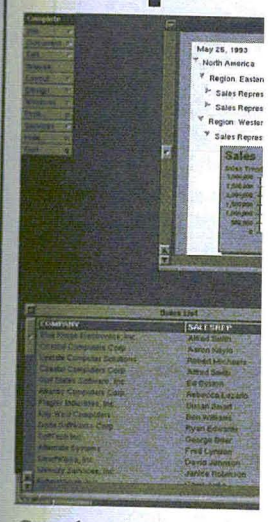


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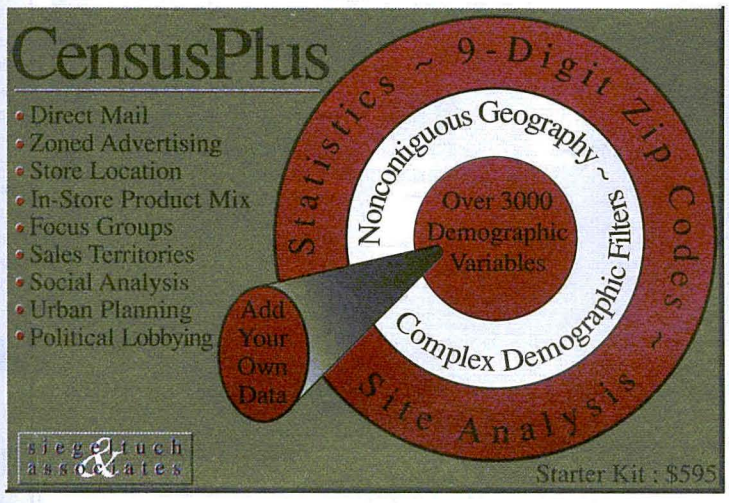
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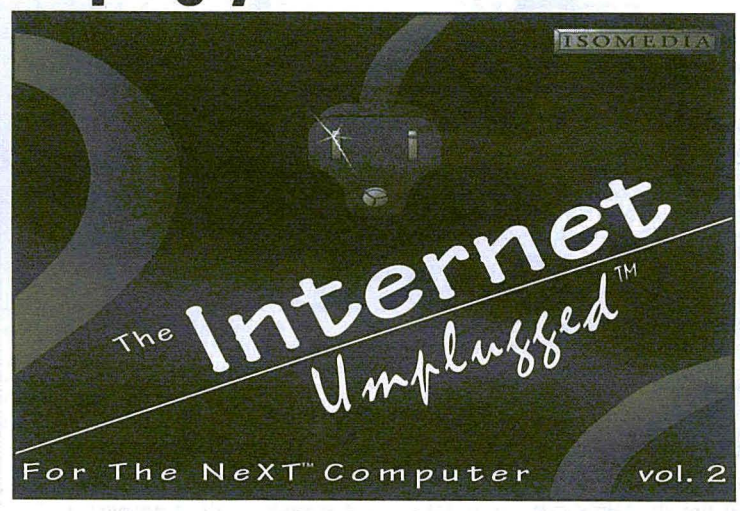


Graphically create and execute queries like:
Find places in metro Philadelphia and New Jersey where more than 20% of the households have incomes more than $100,000 and at least 10% of the workers are self-employed.
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Unplug your NeXT! vol. 2

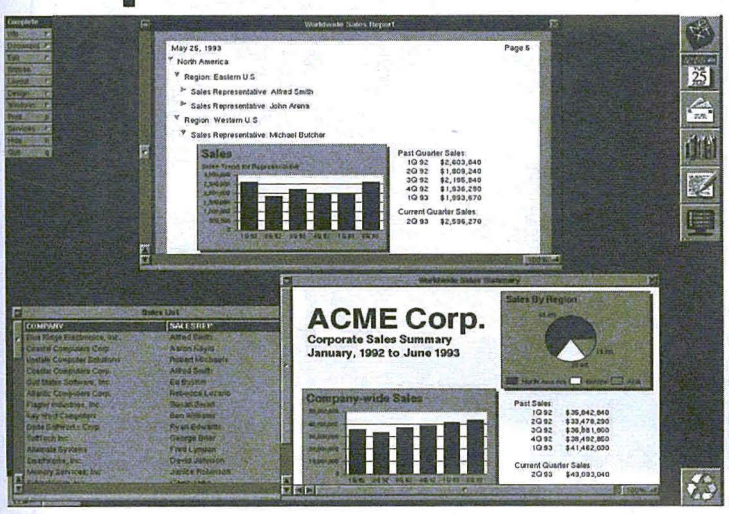


The most frequent question about volume 1 was "When is volume 2 coming out?" Well, it's here! This Rockridge compliant disc includes Demos, Games, Utilities, Images, CD-Quality Sounds, and Programming examples. All software has been unpacked so it can be left on the disc, not on your hard disk. If you are using NeXTStep ver. 3.0, you need this disc! Price $79.95 Visa/MasterCard/Discover accepted. Vol. 1 is also available for $79.95. Order both for $140 and save $20.00!

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Complete Access

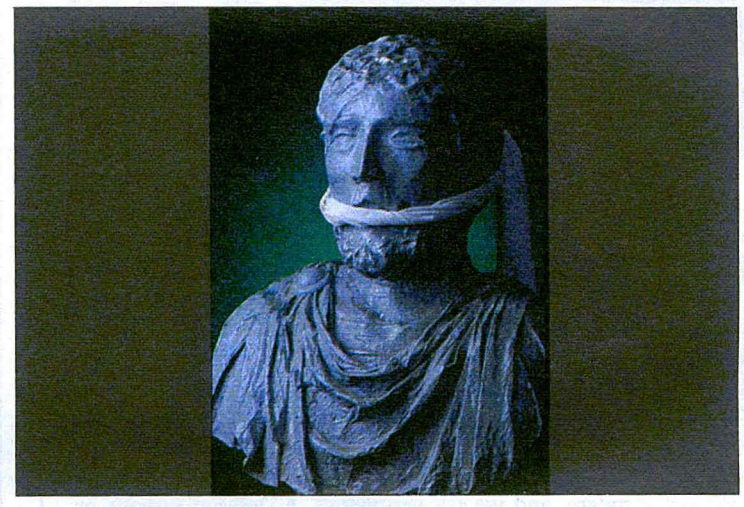


Complete Access is the database access tool that combines report writing, forms, outlining, charting, and ease-of-use to provide the complete database access tool for all NeXT users. With development costs of Client/Server applications approaching $600,000 (Forrester Research, Inc.), it pays to use the applicaton which lets you do it all yourself, in record time. Complete Access can be used with Sybase, Oracle, or any other SQL database for which an adaptor is available.

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Product Showcase

Damn!

I wouldn't want my NeXT computer to be equipped with your fax software even if you were giving away free six-slice toasters. You people think that just because you write a fully comprehensive and powerful fax/modem package that everybody should automatically call you? Well, let me tell you something: I don't care for your software no matter how efficient it is. I know that may sound remarkable to *holier than thou* people such as yourselves, but I have no desire to take advantage of the DFax benefits. Who do you people think you are? It doesn't even port to the Mac!

Damn!

I think DFax is an awesome idea! The problems you have solved have been making me pull my hair out! I would be interested in getting more information from you as it will be of no harm or risk to me. Please send more information, I have already contacted you via the address and phone number below. Bravo!

Seamless integration is crucial to reliable telecommunications, and herein lies the DFax difference. DFax 1.04 supports fully transparent fax and data transmissions on the SupraFAXmodem at speeds up to 57.6 kbps. Future releases will support many additional modems. The reliablility of DFax and economy of the SupraFAXmodem makes it possible for every NeXT owner to afford quality telecommunications.

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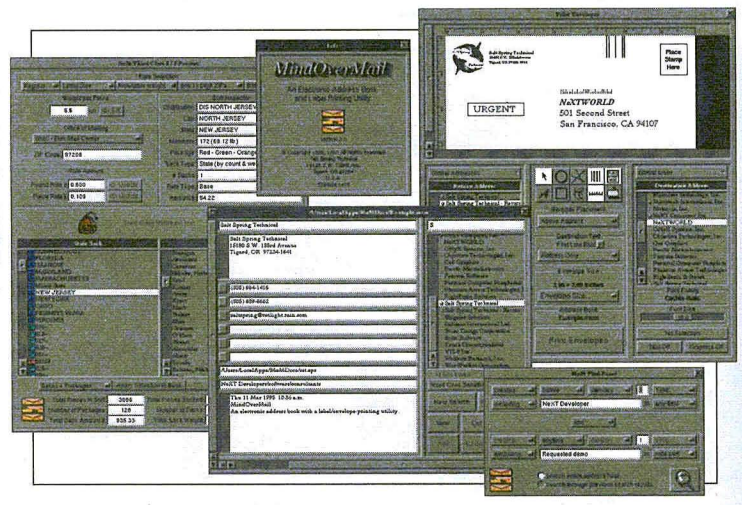
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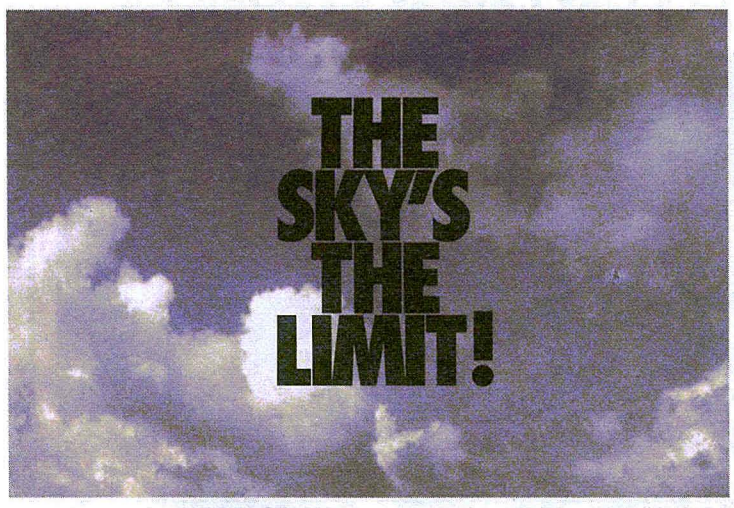
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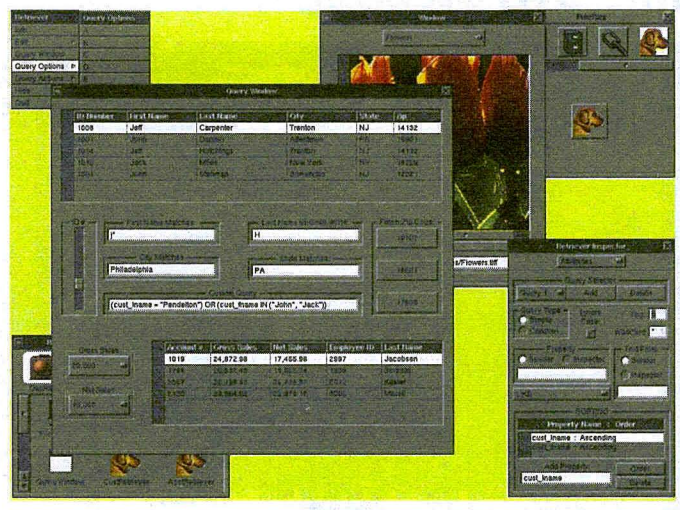


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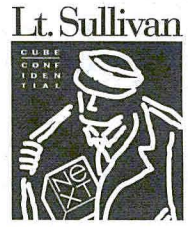
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Exaggerated Report?

JOHN PERRY BARLOW

Mark Twain is reported to have encountered his own obituary and written its author a terse note, "Reports of my recent demise are grossly exaggerated." NeXT users have special reason to relate to this quote right now.

Trouble is, "right now," as I write this, is mid-March. You won't read this until the end of May or later. By then, Steve Jobs may have pulled his greatest resurrection stunt yet. If he hasn't, an obituary of NeXT Computer might not seem so exaggerated.

For the first time, and even though NeXT is doing most things right for a change, I'm having serious doubts that the company can become a serious player. If I'm wrong and NeXT is looking at a real future two months from now, I will gladly use the occasion of NeXTWORLD Expo to eat these words. I'll literally chow down on this page of the magazine.

If I'm not eating paper come Expo, it won't be because of technology. With NeXTSTEP delivering today what Microsoft, Sun, and Taligent hope to have Real Soon Now, NeXT ought to be able clean up, right? Maybe not. There seems to have been a failure to communicate. The results are discouraging.

To name but one indication of this, I just read an entire issue of *UnixWorld* devoted to Windows NT and the other new-wave vapor operating systems mentioned above. NeXTSTEP wasn't mentioned once, even in derision. It was as though it doesn't exist.

Moreover, NeXT has been leaking brains as though from a massive head injury. Peter Van Cuylenburg's departure is merely the latest in a discouraging parade toward the exits. As one of the departed said to me recently, "The only people left at NeXT are those who simply can't say no."

And left alone at the top of this chaotic organization is the genuinely tragic figure of Steven Paul Jobs, a character with as much hubris as anyone who's shown up since Euripides quit writing plays.

Most of us yearn to do well the things we can't and tend to diminish the importance of our real gifts. Steve is no different. A truly great visionary and myth-maker, he has strangely but consistently aspired to be a businessman and manager, showing markedly less talent for either of these dreary vocations.

As a businessman, he's had a hard time remembering the role of compromise in the Art of the Deal. While adherence to principle is an honorable attribute, one must enter most negotiations prepared to give something. But, as one industry leader told me, "I've tried to do business with Steve Jobs on ten different occasions and it always failed over some meaningless little detail."

As a manager, he has a curse for creating organizations that look more like dysfunctional families, filled with people far too dependent upon his whims for their own self-esteem to tell him when he's wrong.

If NeXT fails, I will take it personally. I have staked a lot of my extremely scarce credibility on the proposition that, despite the worst marketing since the Edsel, anything as cool as NeXTSTEP would sooner or later sell itself. Now the time has come to think the unwelcome but nevertheless thinkable: This time, the magic may not work.

This column now goes in a time capsule to be opened at Expo. By the time you read these words, their gloom will likely either seem hysterically exaggerated or just another piece of the eulogy. See you in San Francisco.

JOHN PERRY BARLOW *appears in this space every issue.*

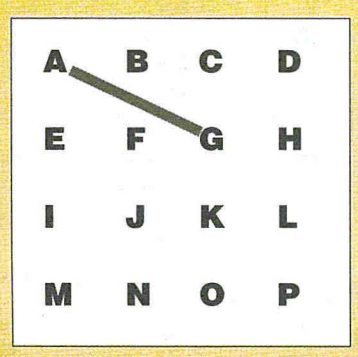
Mental Blocks

NEXT GAMES

by SCOTT KIM

With the addition of the 3DKit to NeXTSTEP, developers are creating many new applications that feature 3-D graphics. Here is a 3-D puzzle to give your spatial imagination a workout.

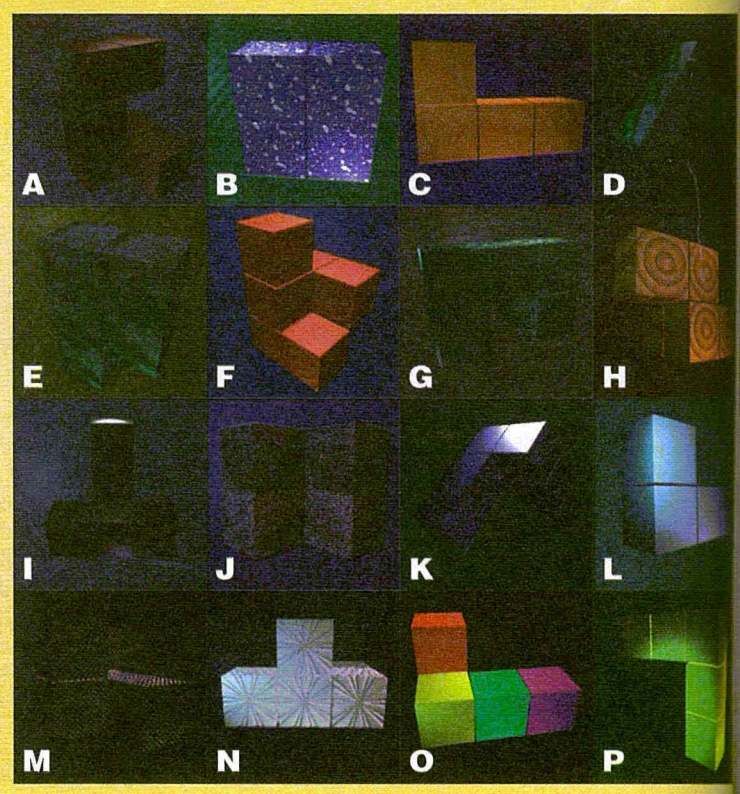
I used Frontface from nPOINT to create the 16 floating objects at right. Each object is composed of six cubes, all the same size, joined face-to-face to make a single, connected object. Some of the cubes are hidden in back of other cubes, where they can't be seen.



Your challenge is to identify eight different pairs of objects that have the same shape (ignore color and texture). For instance, although objects A and G are viewed from different angles, they have the same shape. Some objects have more than one potential match – object B could match either objects H or J, depending on where the missing cubes are – but in the final analysis, each object can belong to only one pair.

Up to ten lucky winners will receive a *NeXTWORLD* T-shirt. Address entries to Puzzle Editor, *NeXTWORLD*, 501 Second St., San Francisco CA 94107. Or fax us at 415/978-3196. Entries must be received by June 30, 1993. Ideas for new puzzles are welcome.

The solution to the February/March 1993 NeXT Game will be included in the next issue.



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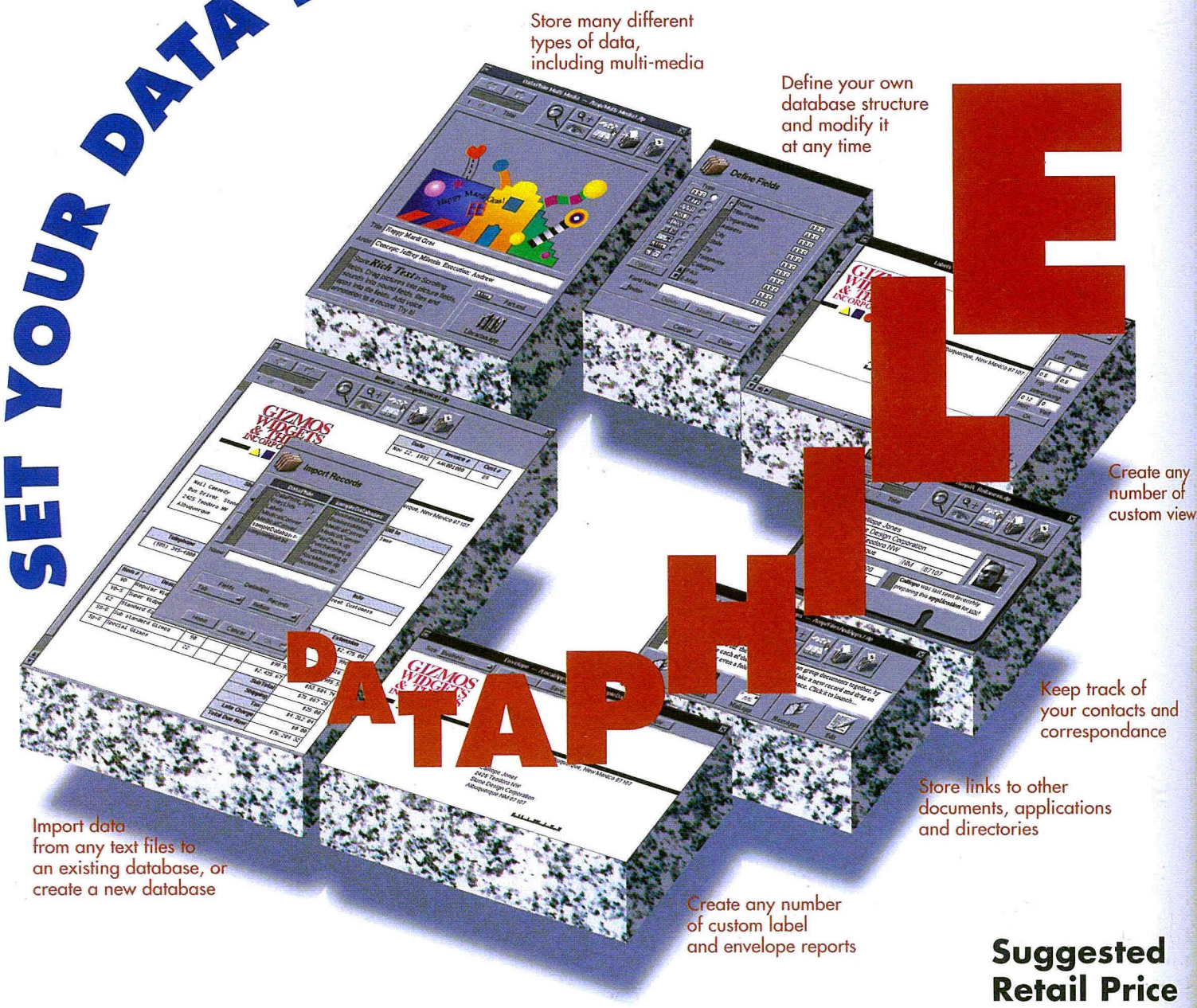
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* "The CW Guide to Servers: Buyers' Scorecard," Computerworld, March 22, 1993.

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